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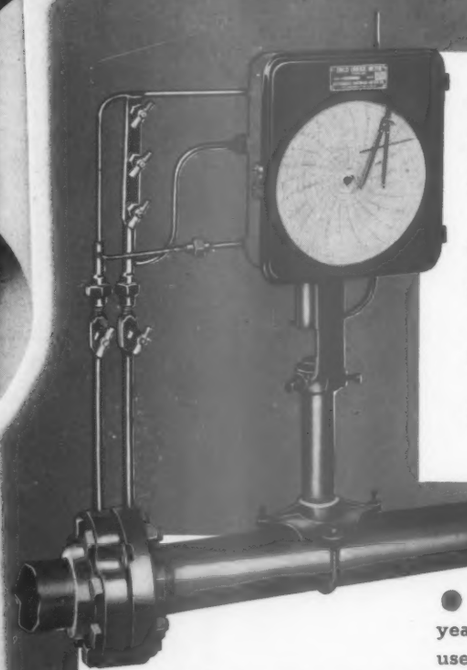
Type 38 ORIFICE METER

FOR GAS, STEAM, OIL AND OTHER LIQUIDS



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BAKER CEMENT WASH-DOWN WHIRLER FLOAT SHOE
ALL SIGNS POINT TO
BAKER CEMENT RETAINER
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BETTER CEMENTING
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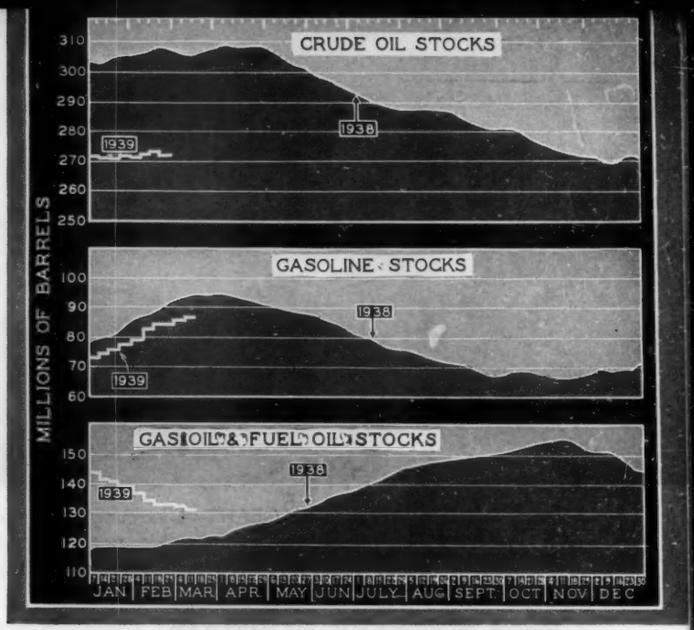
Trends

Raising of Crude and Wholesale Quotations Gives Encouragement


CRUDE OIL STOCKS
GASOLINE STOCKS
GAS OIL & FUEL OIL STOCKS
MILLIONS OF BARRELS
1938
1939
JAN. FEB. MAR. APR. MAY JUN JULY AUG SEPT. OCT NOV. DEC.

THOSE who feel confident that important improvement is under way in crude oil and refinery markets could point to additional developments over the past week in support of their position. In the crude oil division, independent refining interests advanced the prices paid for crude in North Louisiana and North Texas - Oklahoma fields. While their prices are still below posted schedules of major buyers in some instances, the changes have been interpreted as due to the strengthening of crude markets in the areas affected.

CRUDE PRODUCTION *3,349,388 barrels daily average—up 19,951. One year ago 3,380,201 barrels.*

CRUDE STOCKS *271,758,000 barrels as of February 25—up 506,000. One year ago 305,167,000 barrels.*

GASOLINE STOCKS *85,966,000 barrels as of March 11—up 587,000. One year ago 92,294,000 barrels.*

GAS AND FUEL OIL STOCKS *130,646,000 barrels as of March 11—down 1,284,000. One year ago 121,439,000 barrels.*

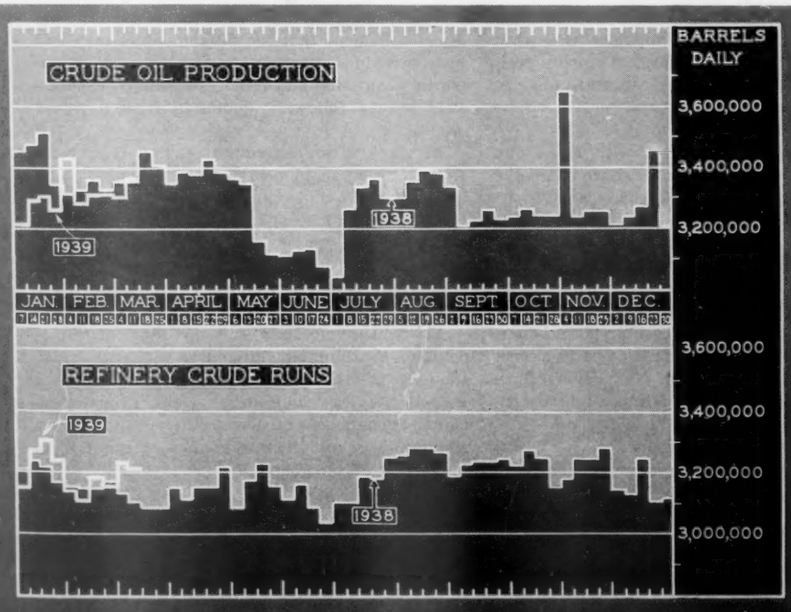
REFINERY RUNS *3,205,000 barrels daily week ending March 11 — down 25,000. One year ago 3,093,000 barrels.*

In an important stripper area of northern Oklahoma and Kansas, where lower schedules have been proposed by a refinery buyer, there were indications the first of the week that the reductions would not be made effective. It was also reported that some of the Illinois crude offered at 40 to 50 cents per barrel below the posted schedules has been withdrawn from the market. The posted schedule continues at $1.15 per barrel.

In refinery markets there was an encouraging trend in posted dealer and tank-wagon schedules. The Standard of Indiana advanced its quotations on gasoline, kerosene, tractor fuel and furnace oil to normal at all subnormal points in six states of the Middle West. The advances ranged up to one-half cent a gallon. While there were no general advances in other areas, it has been noteworthy that most of the changes in wholesale and retail gasoline quotations throughout the United States since the first of the month have been advances. Gasoline tankcar prices were advanced one-eighth cent at most points in the Mid-Continent.

Finally, the optimists were able to point to the Bureau of Mines' report covering January operations as indicating a highly encouraging demand situation. The weekly reports covering production and inventory changes available during January had indicated that shipments were running ahead of January, 1938, but the actual increases reported by the Government exceeded predictions. The report shows a gain of 17.7 per cent in gasoline exports, with an increase of 7.6 per cent in domestic shipments. The total gain was 8.4 per cent for the month. Other total gains reported for that month compared to January, 1938, were kerosene, 9.5 per cent; gas oil and distillate, 17 per cent; residual fuel, 15.4 per cent; lubricating oils, 7.5 per cent. It is felt that these shipments point to larger gains in demand in 1939 than were predicted by most economists three months ago.

Both Michigan and Illinois established new highs in crude production last week although drilling has been retarded in both states due to weather conditions. It is believed that Illinois' production will show a steady increase to a peak around 200,000 bbls. daily with a higher output in prospect for Michigan.



DAILY AVERAGE PRODUCTION FOR WEEK

	Mar. 11, 1939	Bur. Mines Mar. est. of demand	Mar. state allowables	Mar. 4, 1939
Oklahoma City	115,900	.....	.....	110,350
Fitts	30,200	.....	.....	30,525
Remainder of state	300,175	.....	.....	300,325
Total Oklahoma	446,275	473,200	428,000	441,200
East Texas	372,798	.....	.....	372,648
West Texas	209,352	.....	.....	208,800
North Central Texas	111,296	.....	.....	111,398
Texas Panhandle	65,700	.....	.....	68,649
East Central Texas	94,649	.....	.....	96,697
Gulf Coast Texas	358,048	.....	.....	356,050
Southwest Texas	107,300	.....	.....	106,797
Total Texas	1,319,143	1,363,900	1,319,542	1,321,039
North Louisiana	73,455	.....	.....	72,115
Gulf Coast Louisiana	191,500	.....	.....	196,740
Total Louisiana	264,955	259,700	254,220	268,855
California	628,500	588,400	610,000	607,500
Kansas	139,000	150,300	156,850	144,900
Arkansas	53,450	50,000	53,090	52,675
Illinois	163,100	125,500	.....	160,596
Eastern fields	95,900	100,300	.....	96,200
Michigan	58,495	47,700	.....	55,992
New Mexico	114,510	109,700	109,700	114,540
Rocky Mountain area	66,060	71,300	.....	65,940
Total United States	3,349,388	3,340,000	.....	3,329,437

World Means

STAGE SET FOR PACIFIC PAGEANT—*Gleaming palaces and towers set off by thousands of trees and shrubs make an incomparable setting for the 1939 Golden Gate International Exposition on Treasure Island in San Francisco Bay*

By H. STANLEY NORMAN

NEW YORK, Mar. 13.—Between 4,000,000 and 5,000,000 private passenger automobiles will dot the nation's highways this summer transporting an average of four passengers per car to fairs at two extremes of the country. The unorganized trek of Americans to the New York World's Fair on Long Island and the Golden Gate Exposition on Treasure Island in San Francisco Bay offers the petroleum industry probably the best opportunity in history for stimulation of gasoline and motor oil consumption.

Direct travel from all parts of the country to one or both of the expositions offers the probable consumption of approximately 7,000,000 bbls. of motor fuel and an estimated total of 2,000,000 gallons of motor oil. However, the side trips most motorists will take and the driving while attending the fairs may double the figures. Calculated on a conservative basis, the probable summer consumption by fair motorists will be around 10,000,000 bbls. of motor fuel during April, May, June, July, August and September.

It cannot, of course, be assumed that cars used for trips to San Francisco or New York would be idle under normal conditions, but it is likely not more than 5,000,000 bbls. would be consumed normally. Converted into crude oil, the demand by private motoring to one of the fairs this summer will call for the equivalent of approximately 30,000 bbls. daily over the entire year.

Ample Parking Provision

Contrary to the propaganda by some competitive mediums of transportation, managements of the fairs have made ample provision for accommodating motorists with tourist camps, parking facilities, highway markers, entrances and exits. Any inconvenience in traffic congestion in the immediate vicinity of the fair grounds is preponderately offset by the greater economy of private car operation, compared to railroads, airlines and even buses. Despite the special low rates by the rail and bus lines economical travel remains decidedly in favor of the motor car.

It is estimated that each of the 4,500,000 private automobiles used for transportation to the fairs this summer will carry an average of four passengers. The actual outlay for petroleum products in driving 3,000 miles—the average round trip from the Middle West to either of the two fairs—should be in the vicinity of $50, or about $12 per passenger. To the actual cost of petroleum products for private car operation, calculated at about 1½ cents per mile, must be added the expenditure for meals, sleeping accommodations and entertainment. It is well established that meals and sleeping accommodations obtainable at satisfactory stations along the highways are much more economical than those customarily available at the main terminals of bus or rail lines. Furthermore, the cost for food and shelter exists irrespective of the method of travel.

Estimates of Attendance

Estimates have been made that 18,500,000 separate individuals outside of the metropolitan area will attend the New York World's Fair, and that 70 per cent, or 12,750,000, will travel by private automobile, so that about 3,169,000 private cars will be engaged in transporting people to and from the New York fair, traveling a total of 1,799,645,000 miles. In arriving at the distance to be covered by each automobile, the figure of 1,799,645,000 car miles must be doubled to provide for the return. Based on an average of 17 miles per gallon, the anticipated travel to New York will require 5,041,022 bbls. of motor fuel, exclusive of side trips or operation at destination.

The detailed breakdown for private car travel to the Golden Gate Exposition was not available in so complete a form, but it is estimated 3,000,000 to 4,000,000 people will travel to Treasure Island by private cars, which will require about 750,000 to 1,000,000 vehicles. The proportionate distribution by states will not be much altered from that projected for the New York fair, excepting east of the Mississippi.

Attractions of both fairs, the ease with which they can be reached by private automobile and much of the general information desired and required by motorists have been widely publicized by the management. The desire to visit one of the expositions has been sold to private motorists without the aid of the oil companies. However, practically all of the companies have made preparations to stimulate private car travel to the fairs through their highway maps, service station literature and other mediums.

Although the direct contact with retail outlets passed with adoption of the Iowa plan, the oil companies acting through dealers are grooming their forces to accommodate tourists to the fairs. Specific directions on hotel accommodations, routes, toll and parking charges along with similar information has been given general distribution among retail outlets. Promotional items, such as the New York World's Fair glass banks, distribution of which was started as early as last October by Standard Oil Co. of New Jersey, have been important stimulators of interest in traveling to the fair.

Both fairs have anticipated the need for generous parking space and a minimum of confusion entering and leaving the grounds. At the New York fair, space for 43,000 private cars in five fields has been paved and will be carefully supervised. In addition, there is a trailer camp in the borough of the Bronx, near a direct approach to the 1,216-acre fair site, which will accommodate 5,000 trailers. Distribution of data on the adequacy of parking facilities has been made throughout their territories by the oil companies and this campaign continues with emphasis due in the latter part of April and May.

San Francisco, prepared to handle peak loads of 70,000 visitors hourly, includes ample parking space on the 400-acre Treasure Island. The two largest bridges in the world—Golden Gate Bridge and San Francisco-Oakland Bay Bridge—will lead motorists directly to the fair grounds in San Francisco.

One of the chief obstacles to be overcome by the oil companies is the fear that motorists from less densely populated districts have of driving in New York or in the San Francisco Bay region. Management of the Golden Gate Exposition has repeatedly pointed out that a six-lane causeway constructed at a cost of $600,000 leads from the Golden Gate Bridge into the heart of Treasure Island. The New York fair management has called upon Earnest B. Bearnarth, director of the travel bureau of the Automobile Club of New York, to dispel some of the motorists' fears. He has declared: "No one need hesitate to drive into the heart of the Times Square section because New York is one of the easiest cities in which to pilot a car, and unless the visitor has personal reasons for stopping outside the city it is not necessary to do so and be put to the extra expense and loss of time traveling back and forth."

Plenty of Approaches

The extent to which the management and the city of New York are opening avenues for stimulating private motor car travel to the fair and a general theme that the oil companies may and have been incorporating in their literature, newspaper advertising and radio programs is exemplified by the following quotation from a recent release:

"It makes no difference whether you come from New England or Florida, Canada or Colorado, all roads and approaches and highways in the vicinity will be able to handle the increased traffic. Seven major bridges, two tunnels and dozens of ferries are ready to transport you and your car across the Hudson River or the East River.

"If you come from the direction of Philadelphia, Washington, Pittsburgh on the south, Route 1 or 22 will take you over the famous Pulaski Skyway and whisk you through the Holland Tunnel from Jersey City to downtown Manhattan. From here, the trip to the fair is just a hop, skip and jump.

Fairs Offer Oil Industry to Enlarge Consumption

"Motorists from the North and Northwest will approach the metropolitan area on Routes 2 and 9W where they will have the choice of the George Washington Bridge or the new Lincoln Tunnel. The bridge, longest span in the district, terminates on Henry Hudson Parkway and the tunnel deposits traffic near Forty-second Street and the Times Square section.

"If you are from Canada or Albany or New England you'll have a choice of several excellent highways that approach the city and the fair. For instance travelers from the North will find that Saw Mill River Parkway and Henry Hudson Parkway offer easy access to upper New York.

"From New England and the Northeast autoists will find that the Whitestone Bridge, a new structure spanning the East River which will be completed on April 30, is a short-cut from the Bronx to the fair grounds. This route, by way of Hutchinson River Parkway and Pelham Road, will avoid Manhattan Island entirely.

"Once you have arrived in New York City the rest is easy. All the highways leading to the fair will be studded with World's Fair route markers. Of standard 2-foot size and simple in design, these markers consist of a reproduction in white of the Perisphere and Trylon, dominating structures of the exposition, set against a blue background. Left and right turns are indicated by a blue L or R in the middle of the Perisphere.

"Another aid for strangers in the big city will be the official fair traffic map. Various oil companies have incorporated them in their folders, and it will be distributed at information booths by the Port of New York Authority at the Holland and Lincoln tunnels and the George Washington, Triborough and Whitestone bridges.

"Information on parking, trailer camps, housing facilities and what to see and do will be given out at these booths. Similar booths will probably be set up throughout the city.

"Markers and maps, widened streets and new highways, bridges and tunnels, information booths and informative police have made a trip to the New York World's Fair 1939 just as simple as a trip to Aunt Essie's for Sunday dinner. So, we'll be seeing you at the fair this year."

Maps and Information

Maps and highway information universally demanded at service stations are being used for dissemination of advice on attractions along the routes to each fair. The Pacific northwest territory, Yosemite Valley, the New England section, the seashore and mountain summer resorts of the northeastern Atlantic sections are among the attractions being placed before prospective motorists to the fairs, which are expected to cause consumption of many more millions of gallons of motor fuel and thousands of gallons of motor oil.

The Golden Gate Exposition management has stressed that visitors can see all of the attractions to which admission is charged for $3.50, and the New York fair has emphasized that $15 will cover all the rides, shows and other concessions. The New York fair management adds that free entertainment attractions represent an expenditure of $70,000,000 as compared to $10,000,000 spend on those to which admission is charged.

The traffic to both expositions will be generally spread outside a radius of 400 or 500 miles. For the reason that concentrated motor travel will be somewhat limited, the major sales efforts are being applied within the restricted zones. In the area bounded by Washington, Pittsburgh and Buffalo, for instance, it is estimated markets will exist this summer for additions to normal consumption in the following quantities: 100,000,000 gallons of gasoline, 1,500,000 gallons of motor oil, 140,000 gallons of chassis lubricants, 186,000 tires, 47,000 batteries and $1,000,000 worth of miscellaneous accessories.

First official painting of New York World's Fair 1939, showing $155,000,000 "World of Tomorrow" Exposition as it will appear at gala opening on April 30. (Copyright, New York World's Fair 1939)

SPARKS FROM THE NEWS

TWENTIETH BIRTHDAY

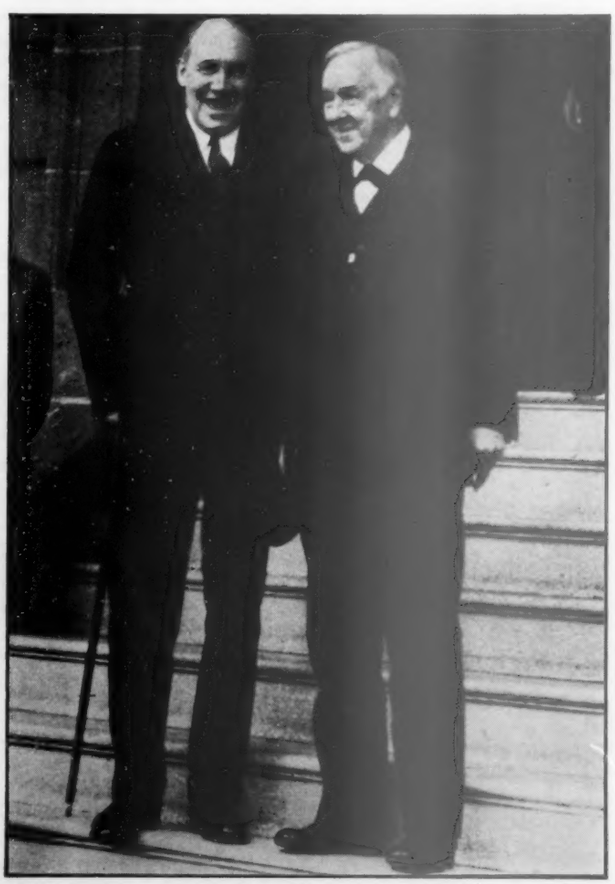
The A.P.I. was 20 years old Tuesday. During that period nearly seventeen billion barrels of crude oil have been produced in the United States which sold for more than twenty-one billion dollars.

OPPORTUNITY

By encouraging visitors to go to two world fairs in cars the oil industry can improve its statistical position through expansion of demand rather than the usual contraction of supply.

VERMONT UNDER LEASE

Over 6,000,000 acres have been leased in the Forest City basin of four states—equal in area to the State of Vermont.



Donald Richberg and Ambassador Josephus Daniels at Mexican capital where Mr. Richberg is conferring with President Cardenas on expropriated oil properties

AMAZING RECORD

The B. of M.'s first 1939 report covering January shows following percentage gains in total demand over January, 1938: Gasoline, 8.4; kerosene, 9.5; gas oil and fuels, 16.

DOUBLE CHECK

With more than 100 wells drilling, Germany will know shortly more about its oil reserves. In the meanwhile its production of substitutes exceeds that of any other country.

MAJOR EXTENSION

An extension to the South Eunice field, New Mexico, filled everything around it with oil and finally was given a rating of 9,600 bbls. daily.

POSTPONES ACTION

The Arkansas Legislature became entangled in the usual last-minute jam and failed to join the interstate oil compact.

SHALLOW GUSHER

A Kansas well unexpectedly found production in shallow Topeka lime last week, blew in with 12,000,000 cu. ft. of gas and flowed 40 bbls. of oil an hour unchecked for three days.

JAPANESE FACTOR

A government report shows a decrease of more than 50,000 bbls. daily in crude shipments to Japan during January, reflecting a changed situation which means California's production must be brought down to 600,000 bbls. daily.

IT WOULD

The vigorous wax market is attributed to the fact that in this division refiners keep production balanced with demand. Export shipments have greatly increased since January 1.

TIME WILL TELL

Refiners are not so concerned about mounting gasoline stocks. Whether they are justified remains to be seen.

HISTORY REPEATS

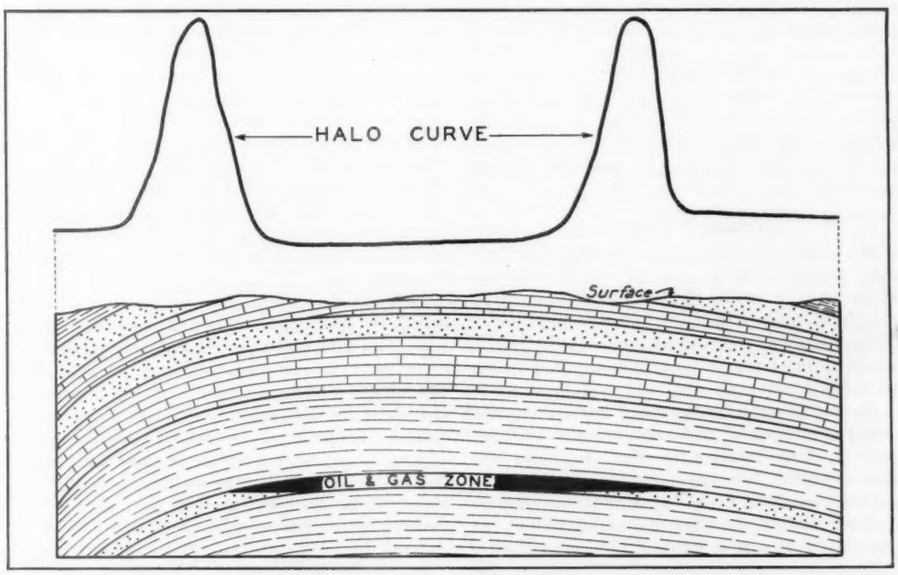
Too much $1.15 oil being sold at 50 and 60 cents has changed the minds of many Illinois oil men who were once opposed to conservation legislation.

An Advance in Exploration by Soil Analysis Methods

By DR. MALVIN G. HOFFMAN
Chief Geologist, Midco Oil Corp.

The petroleum industry is one of the most scientific industries in the world. No scientific principle or discovery is regarded as too insignificant to be overlooked in its possible application to the search for buried liquid treasure. As new methods are found they are added to those already in use. The general plan is to refine the known methods and add to them the new ones as soon as they reach a working basis. Not one method which has ever been applied to the discovery of oil is not now in use somewhere. In many instances all known scientific practices are applied in the same area.

The present tendency is to check a structure so completely that the possibility of drilling a dry hole is reduced to a minimum. The success of this practice speaks for itself. Petroleum reserves have grown by leaps and bounds. A large number of deep oil pools have been discovered in the past decade. Many of them might have been found by the use of the earlier methods but the number of dry holes that undoubtedly would have been drilled in the process would have made the cost of discovery almost prohibitive. There is no question but that the use of modern instruments has paid for them many times over.



Halo type of curve over anticlinal structure

Quite often it is necessary to guard against the over-enthusiastic acceptance of new ideas. The search for petroleum is so highly competitive that occasionally new methods are introduced before they have been tested as to their proper application. We must not expect to find that some new idea holds out a magic wand. In the present state of the industry we can hardly point to any discovery and say it was made solely by the use of one type of instrument or one method. Almost all of them have been found by the application of several, or all, the means known to modern science.

The most recent advance in exploration technology is the introduction of the soil survey. A chemical analysis of the amounts of the hydrocarbon content of the soils is made. Then the hydrocarbon values are studied in an attempt to locate, by their relative amounts, the presence or absence of underlying oil reservoirs.

There is a marked difference between this geochemical process and the geological and geophysical methods already in use. This new geochemical process attempts to locate the oil body regardless of what the structure might be, while the other methods have attempted no more than determination of the geological structure. It was left to the drill to find the oil.

Since soil analysis is both new and revolutionary it must be successfully carried through the experimental stage before it can be safely applied. Hasty application followed by failures will cause considerable hurt and do much to retard its progress.

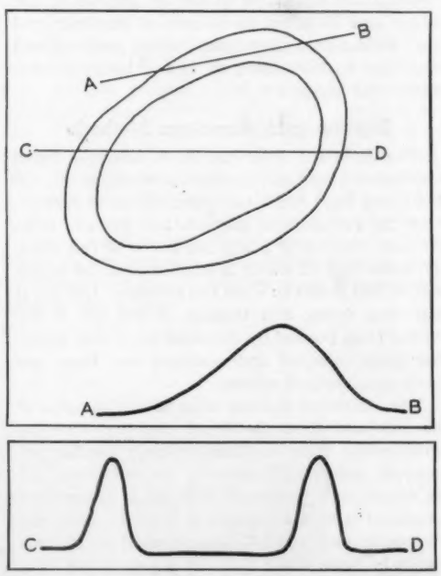
Theoretically, the principle of upward diffusion of gases and their concentration in the crust is fundamentally correct. A rough practical application was made in the earlier days when salt domes along the Gulf Coast region were found beneath accumulations of paraffin dirt. Paraffin dirt was regarded as being formed by the residues of infinitesimal seepages which worked their way upward and into the soil layer.

The viscosity of gases in general is extremely low, therefore gas molecules can pass through minute openings. Hydrogen has been passed through thin plates of platinum and palladium, and helium has moved through fused quartz at high temperatures. These are materials normally considered impervious. It is much less a problem to press gas through porous and fractured rocks and through the rock particles themselves.

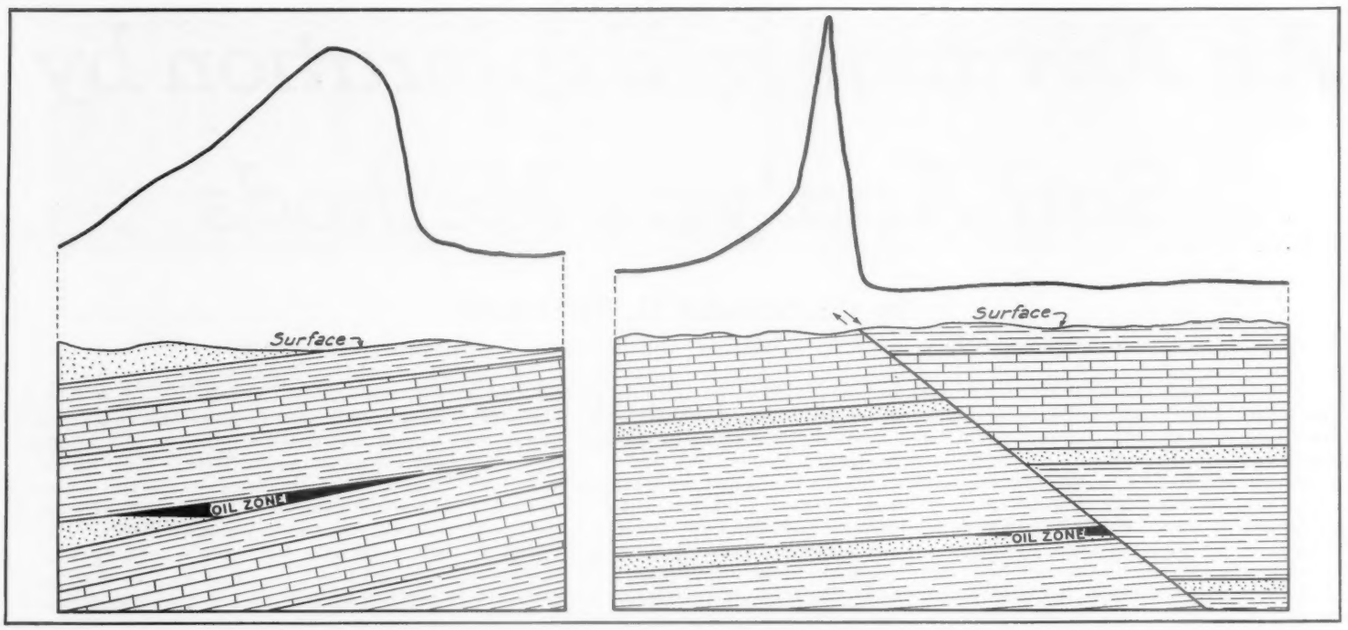
Most oils in their natural state are under great pressures, ranging from a few hundred pounds to as much as 5,000 or 6,000 pounds to the square inch. Temperatures higher than 200° F. are also known. Under these conditions a natural distillation process takes place. The hydrocarbon vapors under relatively high pressures and temperatures will tend to move toward areas of lower temperatures and pressures. This means that the migration will be vertical and the gases will diffuse toward the surface.

The rate of diffusion of gases through the rocks in the earth's crust is one of the many problems still to be solved. According to Graham's law the rate of diffusion is inversely proportional to the square root of the density of the gases, which means that the lighter gases will diffuse more rapidly than the heavier ones.

The hydrocarbon vapors will move upward through the fractures and pore spaces in the rocks. They will pass through water-saturated zones, because the liquid is not a barrier. Much of the rock which we ordinarily consider impervi-



(Upper) *Ground plan of halo representing ideal conditions.*—(Center) *Section A-B looks like curve over a stratigraphic trap, but it is probably in nonproducing territory.*—(Lower) *Cross section of halo*



(Left) *Hydrocarbon value curve over stratigraphic trap.*—(Right) *Sharp peak curve over fault*

ous to oil may be pervious to oil vapors. Such rocks are compact limestones and shales. They have a certain amount of porosity between the particles of rock, but also those particles are pervious to the gases. The permeability of such a rock must be very low, even to gases, but the fact that the gases do get through is of the utmost importance. It is evident, therefore, that unless there was some means of concentration at the surface there would not be enough gas present in the soils to be measured by the most refined methods of geochemical analysis.

Concentration at the surface is accomplished by absorption, adsorption, oxidation, and polymerization. Most soils contain a considerable amount of carbonaceous material as a result of bacteriological decay, and carbonaceous soils are very good adsorbers and absorbers. Boxwood charcoal can absorb 90 times its volume of ammonia and 35 times its volume of carbonic acid gas. Oxidation and polymerization will convert the light hydrocarbons to heavy hydrocarbons, waxes and asphalts.

Russian and American Methods

The Russians have used soil analysis for a number of years as a means for locating oil and gas. They have had a moderate degree of success. They do not analyze the soil but the gas from the soil. They drill a hole from 6 to 10 feet deep, the lower half of which is smaller than the upper half. A bell is driven upon the shoulder, left about half way down, and through it the gas is extracted from the soil by means of a vacuum pump. The gases collected and analyzed are almost entirely methane and ethane.

The American method is to collect samples of the soil and then distill off the hydrocarbons which range from methane through the heavier gases to waxes and asphalts. In practically all the American experiments methane is disregarded because it is both a product of organic decay and a vapor from crude oil. The proportions of each cannot be separated.

The laboratories of the Geological Scientific Service Co. of Fort Worth, Tex., make their analyses on the soil taken a few inches below the surface. They work with the molecules of the heavier gases and light liquids from butane to octane. These molecules are less volatile than ethane and propane and their percentage loss in transportation may be much less than that of the lighter gases. It is quite possible there may be a greater concentration in the soils of the heavier hydrocarbons than of the lighter ones. Even though the heavier ones have a lower diffusion rate than the lighter ones they may experience greater concentration in the soils. A larger percentage of the more volatile vapors may escape into the atmosphere, while the heavier ones are captured.

Types of Curves

The Subterrex Laboratories in Houston, Tex., make several sorts of analyses. One is on the ethane content of the soil, another is the wax content in the soil layer, and still another is a determination of the hydrocarbon content in the subsoil layers from 10 to 20 feet or more below the surface.

The method of examination of an area depends upon the amount of detail desired. Samples are taken in lines crossing an area, radiating out from a center hub, or crossed in two sets of parallel lines as a net. The hydrocarbon values of these samples may be platted as curves, or spotted as points on a map and then contoured.

Most all samples have some hydrocarbon value whether taken over a producing or nonproducing area. A normal curve over a nonproducing area will show many small irregularities although the mean curve will be nearly flat. For some reason, at present not satisfactorily explainable, normal curves, now and then, have high anomalies although these anomalies are not consistent over any appreciable area.

Three principal types of curves have been developed over producing areas. One is the halo curve found over closed anticlinal structures, another is the high anomaly curve over the stratigraphic trap, and the third is the high peak found over a fault associated with oil accumulation.

The halo curve is very interesting in that the hydrocarbon values are very low over the producing portion of the structure and very high around the margins. Rosaire has interpreted this as being caused by mineralization over the crest of the structure, forming a sort of cap, thereby reducing the rate of diffusion over the main part of the structure but concentrating the gases around the margins.

Although halos may be present around large structures there is little likelihood that they may be recognized over small structures. The small amount of lateral diffusion which must take place over all structures would cause overlap of the inner boundaries of the halos causing a high peak to appear at the crest of the structure. This type of curve has been found and has been interpreted by some as being caused by a broken structural crest. Since it is very difficult to find a logical explanation in structural geology for the presence of these broken crests, the writer is inclined to the other view.

Over a stratigraphic trap the curve shows high anomalies immediately above the oil reservoir. A reasonable interpretation of such a curve can only be made if the structural and stratigraphic geology of the region is known. If the producing area is small, the curve over a structural trap may be interpreted as one side of a halo covering a dome. A cross-section run through the margin of a halo may look like the anomaly over a stratigraphic trap. If a net survey is made over an extensive area this error may be avoided.

Interpretation of Anomalies

The sharp peak curve over a fault can cause an untold amount of misinterpretation. The high anomaly may properly indicate the presence of oil below the ground but the accumulation may not be present below the peak of the curve. It would be quite impossible to interpret such a condition unless the dip of the fault plant were known and the approximate depth of the expected production.

In general, the curves show many anomalies which are difficult to explain. Very low stations are found to alternate with high ones, and very high anomalies are conspicuous among a series of low values. One or a combination of causes may explain many of the apparent discrepancies, but at present they are the object of considerable speculation. It is not sufficient to base interpretations upon the mean curve without understanding the cause of the many marked variations. Possibly some of them may be of minor importance, while on the other hand, some of them may be of sufficient importance to affect the interpretation

(Continued on Page 115)

Arnold Begins Investigation in Antitrust Enforcement

By HENRY D. RALPH

WASHINGTON, D. C., Mar. 13.—The most vigorous enforcement of the antitrust laws in a generation is promised by Thurman W. Arnold, assistant attorney general, regardless of the administration's general policy of business appeasement and of any findings and recommendations which may be made by the investigation of the Temporary National Economic Committee.

A program of strict enforcement has been promised by Mr. Arnold, but now that he has been implemented with more funds, enforcement agents, and an important Supreme Court decision, he has begun a series of investigations and prosecutions which will affect business policies and relationships in all fields. Agreements to restrict resale prices will be particular targets of the Department of Justice's new campaign, and Mr. Arnold has indicated he will not deal lightly with such agreements even though they have the cloak of protection of state resale price maintenance laws and the sanction of Congress in the Tydings-Miller Act.

The pending case against Chicago milk distributors illustrates the present attitude of the department. It is charged the dairy farmers, milk distributors, and health officials conspired to use sanitary regulations as a means of maintaining prices of milk to consumers and of controlling competition. Another example is the department's announcement it was proceeding against the fertilizer industry on charges of maintaining prices to farmers. Mr. Arnold's procedure in this case is illustrative of the methods he intends to pursue regarding other industries. Before starting the fertilizer investigation he had half a dozen of his men prepare a handbook on the industry outlining methods used and places to look for possible evidence of violation of the antitrust laws. He then obtained the loan of 165 "G-men" from the Federal Bureau of Investigation and put them through an intensive study of this handbook. When all was ready, at the same hour one morning these agents walked into the offices of more than 100 fertilizer manufacturers and demanded to see their books, files and records. One interesting fact is Mr. Arnold's statement that if it cannot be proved the fertilizer industry is violating the antitrust laws he will recommend that Congress enact legislation to bring down the price of fertilizer.

The newly-created economic section of the antitrust division is now intensively engaged in a study of prices of materials going into home construction and of business practices of builders.

Possibly having in mind the Madison trials, Mr. Arnold has reached the conclusion that many antitrust actions have been brought without sufficient preliminary investigation. It is fairly easy to get a grand jury indictment under the antitrust laws, but much more difficult to prove the charges before a trial court, and the department intends to make very thorough investigations before asking for an indictment. To avoid the difficulties in securing a criminal conviction of corporation officials under the antitrust laws, Mr. Arnold is considering a new type of penalty in which several fines would be imposed upon officials of corporations rather than on the corporations themselves, which fine would be sufficiently large to constitute a severe punishment without carrying the stigma of criminal conviction.

Price Agreements

Resale price maintenance agreements of the Tydings-Miller type are not themselves the target of the antitrust division at present, although this law is still opposed by the Department of Justice, but Mr. Arnold is determined to see that resale price contracts are not stretched to cover more than appears on their face and that competing producers do not agree among themselves to fix the same resale prices on articles which are supposed to be in competition with one another. He feels his position on this has been greatly strengthened by a recent Supreme Court decision in the case of the Interstate Circuit, Inc., and other moving picture distributors in which a majority of the court held ownership of the copyright on movie films does not give the distributors the right to control the admission prices of subsequent-run theaters. He feels the same principle can be applied in other cases where producers are attempting to control the prices at which their goods reach the consuming public.

Mr. Arnold has declared he will not pursue a blind policy of adhering strictly to the letter of the antitrust laws regardless of economic consequences and that a decision whether to take action in a given situation will depend on the merits and the facts of each case. His statement still leaves manufacturers in doubt since almost every attempt to regulate prices has a certain economic justification in the minds of those responsible for it.

Mr. Arnold in a recent speech before the Cleveland Bar Association said the economic necessities of a machine age require recognition of several principles in applying the antitrust laws, namely: Combinations in restraint of trade should not be destroyed where they actually contribute to the efficiency of mass production; concerted action on the part of groups of competitors to insure orderly marketing conditions should not be considered unreasonable; where great industries have been built up and competition has disappeared as a result of the lack of enforcement of the antitrust laws there is little to be gained by imposing penalties which will not recreate a condition of competition.

This enforcement policy of the department will proceed without much regard to current studies of the Temporary National Economic Committee, since it is apparent a year or more will elapse before this group reaches any definite conclusions on rewriting the antitrust laws. During the past couple of weeks the committee has heard the Federal Trade Commission in an ex parte denunciation of alleged monopolistic practices in a number of industries including steel, farm machinery, milk, and fish. The method which the commission has used has enraged business observers and has obviously disconcerted a number of members of the T.N.E.C., since the commission produced witnesses who told only one side of the story and the industries were given no opportunity at cross-examination or to present rebuttal evidence. This type of procedure is contrary to the methods outlined by the T.N.E.C. when it scheduled the first hearings, but it may be a forecast of the treatment to be accorded the oil industry when it is reached later in the spring.

Reich Stimulates Oil Development

By C. H. EHLERS

The question whether Germany might become an oil-producing country of importance—at least in Europe—was still subject to considerable debate and doubt a few years ago.

After the World War, the Germany oil industry, having lost its fields to France in Alsace-Lorraine, was one of the smallest producing industries in the world. In 1920 the output amounted to the rather negligible quantity of 260,000 bbls. The total production for 1932 amounted to 1,720,000 bbls. From then on the output increased more rapidly with the coming to power of the present political regime. In 1937 production totaled 3,500,000 bbls., while the output in 1938 is estimated to have been at least 4,500,000 bbls. The latter figure does not include the production of the Zisterdorf-St. Ulrich field in the Ostmark (formerly Austria) with an estimated yield of 525,000 bbls. for 1938.

Four-Year Plans

The progress of Germany's oil industry during the past six years must be attributed to the inauguration of the two four-year plans with their ultimate goal of independence from other countries with respect to certain types of raw material. Prior to 1933 there undoubtedly existed a certain lack of initiative among Germany's oil fraternity to develop her natural resources. Drilling equipment became obsolete, while drilling crews were afforded hardly any opportunity to acquaint themselves with modern operating and producing methods as practiced in the United States.

The following measures seem to be responsible for the present upswing:

Close cooperation and open discussion of experiences and problems encountered among the few large producing companies, in marked contrast to the policy of secrecy in former years.

Inauguration of the Reich drilling program by the Ministry of Economics, whereby drilling companies receive a subsidy up to 50 per cent of drilling costs in regions where favorable structures are located.

Initiation of a systematic investigation of the underground through geophysical methods by the Reich Geological Survey, for which purpose the government has set aside a sum of 2,000,000 marks per year.

That this constructive policy has produced substantial results is shown by the following comparative figures:

Germany's total oil production from the time of the industry's inception in 1872 to September 1938 amounted to 37,500,000 bbls. Of this 19,500,000 bbls. were produced from 1872 to 1932, i.e., in 61 years, while the output from January 1933 to September 1938, i.e. in only five and three-quarters years, amounted to 18,000,000 bbls. In other words, the total production during the last five and three-quarters years almost equals the production for the 61 years, prior to 1933.

These figures clearly illustrate the progress which has been made as a result of concerted efforts and application of modern American exploration methods. There are, moreover, indications that the actual production capacity of at least some of Germany's oil fields is considerably larger than is officially admitted or reflected in the figures made public. The writer had occasion to discuss the general outlook with two of Germany's leading oil men, who were visiting the United States a few months ago. They were extremely reluctant to divulge any information, probably due to the political tension in Europe. For this reason, it is rather difficult to obtain exact production figures for the different fields. Lack of refining facilities is, in the first place, responsible for failure of producing companies to withdraw the quantities the wells are capable of producing. In the second place, there are also reasons to believe that Germany wants to accumulate a reserve for emergencies, for the present relying on increased imports and on the manufacture of synthetic products to meet her ever-increasing consumption.

Since 1933 Germany has discovered 14 new oil fields of which five fields are of major importance. For many years prior to 1933 she had only four producing fields: Wietze, Oelheim-Berghoepen, Oberg and Nienhagen, all within a radius of less than 30 kilometers around the city of Hanover. In 1935-36 five fields were discovered: Moelme, Gifhorn (east of Hanover), Heide (Holstein), Fallstein near Halberstadt, Forst in Baden. After the second four-year plan was inaugurated nine additional fields were located: Steimbke, Broistadt, Adolfs-Glueck (all near Hanover), Sottorf, Meckelfeld (near Hamburg), Worms in Baden, Eicklingen-Santlingen (extension of the Nienhagen pool). The most important field was, however, discovered a few miles southeast of the city of Hamburg, near the village of Reitbrook. This field, according to reports, can be compared with American fields of substantial caliber and is regarded as a second Nienhagen field, which during the last few years had yearly production of more than 2,000,000 bbls. So far 12 wells have been drilled in the Reitbrook field, each of which came in with a production of more than 1,000 bbls. per day. Four additional wells are in the process of drilling in this region. The oil and gas leases in this area are jointly owned by the Deutsche Vacuum Oel A.G. (wholly owned subsidiary of the Socony-Vacuum Oil Co., Inc.) and the "Preussag" (Prussian Mining Co.). The oil comes from a depth of only 2,400 feet and, needless to say, the Reitbrook field is a big money maker, as the equivalent of $5 per barrel is realized by the producers. The field is expected to produce about 1,000,000 bbls. in 1939.

American companies own also large oil and gas lease interests in other parts of Germany. The German subsidiaries of Socony-Vacuum Oil Co., Inc., Standard Oil Co. of New Jersey and the Royal Dutch-Shell group own the mineral rights under approximately 2,000,000 acres in the state of Oldenburg. The North European Oil Corp. (Delaware) acquired this concession from the state several years ago and subsequently transferred the concession agreement to these companies for exploration, in consideration of a certain profit-sharing interest. During the year two wells were drilled in the southern part of the concession area. Both wells had numerous shows of oil in different formations. In view of the big success attained at Reitbrook, the Oldenburg territory, which contains quite a number of salt domes, will be given a thorough test through a systematic drilling campaign on indicated structures, during the year.

Besides the new field at Reitbrook, the Moelme and Gifhorn fields (east of Hanover), seem to have become fields of major importance. Near Moelme, so far, 80 wells have been drilled and near Gifhorn more than 40. So far it has been impossible to obtain correct production figures

(Continued on Page 34)

Germany's Position

The oil map of Germany accompanying this review was especially prepared for The Oil and Gas Journal to show the distribution and extent of known salt domes and the portion of the country in which a salt mass is known to exist.

This review and map showing the areas added to the old Reich by absorption of Austria and territory obtained from Czechoslovakia by the Munich conference is especially timely because of Germany's increasing participation in the South American oil trade and the political tension in Central Europe.

To some extent, the map also shows Germany's position in relation to other substantial petroleum reservoirs in Central Europe.

LEGEND
OIL FIELDS
SALT DOMES
SALT RIDGES
SCALE
50
100
MILES
DENMARK
HEIDE
HOLSTEIN
Hamburg
REITBROOK
SOTTORF
MECKELFELD
MECKLENBURG
OLDENBURG
Bremen
Weser R.
Elbe River
NETHERLANDS
Ems River
HANNOVER
RODEWALD
WIETZE
HOPE
NIENHAGEN
HÄNIGSEN
GIFHORN
Hannover
BERLIN
EDESSE
OELHEIM
Aller R.
MOELME
OBERG
BROISTEDT
FALLSTEIN
BRAUNSCHWEIG
VOLKENRODA
Leipzig
THURINGEN
Rhine River
GERMANY
SUDETEN
CZECH.
WORMS
PFALZ
FORST
PECHELBRONN

STATE CAPITALS

TEXAS

JERRY SADLER, member of the Texas Corporation Commission, announced on Monday that he endorsed the abolition of the two-day-a-week shutdowns of Texas oil wells, in effect since September.

The commissioner said he favored lifting the closure order by means of "elimination of unnecessary and unjust excessive production in the Gulf Coast area from Polk County to Mexico and in the Midland area of West Texas."

Many wells in those areas are exempt from the shutdowns because, operators contend, they would be damaged if subjected to intermittent production.

Recently Chairman Lon Smith of the commission said he favored lifting Saturday shutdowns in April and Sunday closing some time later.

BILL TO EXTEND THE PRORATION LAWS of Texas another two years was tabled by the House last week on Representative Roy Tennant's motion after a point of order had been raised that the caption did not encompass the committee substitute bill. As drawn, the caption stated the bill was to repeal the provision of the law fixing an expiration date for the laws. The committee has amended it to make it two years. Fearing that the bill's validity might later be attacked, Mr. Tennant, author of the bill, had it tabled.

The point of order had been anticipated and another bill, by Representative Fred Felty of San Antonio, is now pending. When the bill was up there were members canvassing the House to hold up action on the extension bill until a tax policy had been determined.

BILL TO AUTHORIZE THE STATE TO DRILL for oil on highway rights of way has been introduced by Senator Joe Hill. The bill, S. B. 366, defines as highways both those in the present designated system and those abandoned and rights of way of all these are made subject to lease by the Board of Mineral Development. The board is also authorized to take proposals to drill, or to contract to have wells drilled. It provides that leases may be taken on highways regardless of the distance from other wells, except that no contract shall be awarded to drill when the nearest well is more than one-half mile away.

The bill further provides that lessees must contract to place all surface equipment below the surface of the highway, which shall be protected by iron or concrete cover. If the state owns an easement it may lease and give half of its income to the granter of the easement. Lessees are given the right of eminent domain.

FIELD HEARINGS CALLED for the purpose of determining whether or not additional special rules, regulations or orders should be adopted included hearings on Agua Dulce field of Nueces County on March 23, the Keeran (deep) field of Victoria County on March 20.

OKLAHOMA

MARKET DEMAND HEARING, to fix allocations for Oklahoma oil fields for the April period, has been set for March 29 by the Oklahoma Corporation Commission. Formal hearing will be in the afternoon, following a conference of producers and purchasers set for the morning. March allowable for the state was set at 428,000 bbls. daily, unchanged since last August.

KANSAS

THE SENATE DEFERRED ACTION on the oil proration measure by Senator Walter F. Jones of Hutchinson which already had provided two afternoons of heated debate. Postponement of future debate on the measure, which Jones said would limit authority of the state Corporation Commission to make special allowables, was made as a courtesy to Senator Joseph S. McDonald, Kansas City, who was called away from Topeka by private business.

The senate turned back one major assault on the bill on March 9 by voting down an amendment to prohibit proration of any pool below market demand on that pool, as proposed by Kirke W. Dale of Arkansas City. Mr. Dale said the bill would force some independent refineries out of business.

FORMAL HEARINGS TO DETERMINE market demand for Kansas oil and gas, held by the Corporation Commission the past two years, will be dispensed with for April, and next month's allowable order will be based on nominations submitted by purchasers to the conservation division, T. A. Morgan, conservation director, announced last week.

Mr. Morgan said he did not know whether the policy of obtaining nominations direct from purchasers without public hearings would be made a permanent commission practice.

April gas and oil allowables under the new setup will be announced as near the first of the month as possible, he said.

CALIFORNIA

RESULTS OF A STATEWIDE BALLOT on the report of the Fact Finding Committee appointed at a general meeting last December will be made known early next week. Approximately 650 operators attended a general meeting in Los Angeles last week to discuss the report now being voted upon and voted to meet again March 15 to take final action on a program designed to alleviate a critical situation confronting major buyers due to lack of adequate tankage by effecting additional curtailment. The primary question is whether operators can reduce crude oil production soon enough and make a cut deep enough to prevent further additions to storage. Approximately 5,000,000 bbls. of crude and refined has been put into stocks since the first of 1939 and over 31,000,000 bbls. was stored last year. Due to the dilatory tactics of producers and failure to reduce production sooner it is now questionable whether the market can absorb a production of 600,000 bbls. daily.

MISSISSIPPI

THE STATE MINERAL LEASE COMMITTEE last week called for submission of new proposals for leases in Mississippi Sound, to be submitted March 23. The Federal Royalties Co. of Houston, which was originally awarded the state leases, refused to sign contracts with the state, contending that the company representative had accepted certain propositions which could not be accepted by the company.

ILLINOIS

ACTING GOVERNOR JOHN STELLE urged the adoption of $10 per acre valuation rate in nonproducing oil and gas leases in Illinois, at a meeting of county taxing officials held in Springfield on March 10.

Attorney General John E. Cassidy recently held leases, royalties and other oil properties were taxable and the conference of county officials was called by the State Tax Commission to discuss an assessment program. The state commission has not yet recommended a detailed plan of assessments, however.

Independent operators interviewed in Centralia said the imposition of such a tax would cause lease owners to relinquish much acreage and would slow up exploration.

Acting Governor Stelle recommended that leases producing 50 bbls. per day or more be assessed at about $1,000 per acre.

LOUISIANA

LOUISIANA DEPARTMENT OF CONSERVATION issued an order last week providing special rules for the development and production of the Shreveport field. From a flat daily allowable of 300 bbls. per well per day, the new proration order places the field production on an acreage, bottom-hole pressure and gas-oil ratio basis. The latter restriction, placed at 2,000 cu. ft. per barrel of oil, is specially designed to curtail excessive gas production in the field, in an effort to maintain the reservoir pressure. The March allowable is placed at 2,700 bbls. daily, with 13 wells on production. A 10-acre spacing pattern was set for development of the Eola field, recent discovery in the Sparta-Wilcox trend in Avoyelles Parish.

ARKANSAS

THE STATE LEGISLATURE ADJOURNED on March 9 without having an opportunity to act on the question of Arkansas joining the interstate oil compact. Governor Bailey did not have a chance, in the last minute jam of business, to introduce a resolution favoring such action.

ANDREW F. SCHOEPPEL, new chairman of the Kansas State Corporation Commission, resides at Ness City, Ness County, Kansas. He has spent 16 years in legal practice in Kansas, having graduated at the University of Nebraska Law School and attended Kansas University for two years. He was a former county attorney in Ness County, and former mayor of Ness City.

the OIL AND GAS JOURNAL

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Fair Gallonage

The expositions at New York and San Francisco offer the oil industry the greatest opportunity it has ever had to expand the consumption of motor fuel and oil.

The American public has always attended our expositions by millions and it is certain that all records will be broken this year.

Competitive transportation agencies for several weeks have been calling the attention of prospective visitors to the services and low prices which they are making available in all parts of the country.

The oil industry has no reason to fear this competition and well directed efforts on its part will mean that many of the millions going to these two expositions will use motor transportation.

The advantages of motor travel are impressive and they can easily be made clear to intending fair visitors. So far as costs go, with two or more passengers using a car, it is the cheapest method of getting to and from either fair.

Millions will not only attend one or both fairs but will wish to take advantage of the opportunity to visit some of the thousands of interesting points accessible along numerous routes. The logical way to make these sidetrips and in many cases the only way is by auto.

TN 765 P-6 v.37, pt. 5

The federal and state governments in the past few years have spent many millions in developing new parks and improving those already in existence. Public and private enterprise has added thousands of scenic and historic attractions across the continent. Highway systems have been connected and expanded until there are few such points in the country not accessible by improved roads.

All along these highways special effort has been made to provide facilities for the comfort of the motoring public, in modern camps with every accommodation for food and shelter. Hotels are finding their principal interest in accommodating motorists and satisfying their requirements.

Many of the more enterprising oil companies maintain travel bureaus which supply the motoring tourist with maps and road information available for practically any tour. This is precisely the information the prospective visitor to the fairs should have at hand before he decides upon his mode of travel. Oil companies, concertedly or individually, should see that the availability of this information is universally known by the motoring public.

Many motorists already know these facts. Many millions more do not. In the next several months the marketing division of the oil industry should make them common knowledge. Concentration of advertising and sales effort on this possibility will result in greater sales gains than from any other type of sales effort.

The benefits will not stop with the marketing end. It will create an increased outlet for both crude oil and refined products. Conservative estimates figure it would mean an addition of 75,000 bbls. of crude daily in demand during the summer and early fall months.

In demonstrating to visitors the pleasures and transportation possibilities of motoring the oil business will benefit in future years long after the fairs are forgotten.

Nor will the benefits be confined to the oil industry. Only a small fraction of the money expended by motorists en route to or from the fairs will go for gasoline and oil. The bulk of their expenditures will be for food, shelter, clothing and the usual purchases of tourists on holiday.

This nation-wide distribution of purchasing will help general business everywhere. Particularly it will aid the automobile industry which has become the greatest single factor in sustained business recovery in this country.

Mid-Continent Strike Issues Are to Be Discussed

With hope expressed on the floor of the state senate at Oklahoma City that the strike against the Mid-Continent Petroleum Corp. would be settled by sunset, Gov. Leon C. Phillips came to Tulsa on March 8 to initiate another series of conferences for bringing about a settlement of the dispute which has continued for nearly three months. Although no results have been announced, it is understood proposals for settling the strike have been discussed and that tentative plans have been made for resuming conferences sometime this week. In his efforts to promote a discussion of issues between the company and the Oil Workers Union, Governor Phillips has been working with J. C. Cooper, conciliator for the U. S. Department of Labor. The principal obstacle continues to be the matter of reemploying strikers who have been charged with violence and sit-down tactics.

The board of directors of the company will meet in New York on March 16 to consider proposals discussed at the governor's conferences last week in Tulsa. At 2 p.m. March 17, J. C. Denton, vice president and general counsel for the company, has agreed to meet the governor at a conference set for that time.

The detail of the National Guard on strike duty in West Tulsa has been reduced to half its size, on orders from the governor. A posse, which includes two men working for the company and one representative of the union, is making an effort to apprehend those responsible for the blasting of pipe lines which has occurred frequently since the strike started.

Five Untried Defendants At Madison Dismissed

MADISON, Wis., Mar. 13.—On the government's motion, five untried defendants in the price fixing conspiracy case against major Midwest oil companies have been dismissed without costs, the federal court docket disclosed here last week.

They are John A. Brown, New York, president, Socony-Vacuum Oil Co.; D. W. Harris, Shreveport, La., general manager, Louisiana Oil Co.; R. G. A. van der Woude, New York, president, Shell Union Oil Corp.; Bernard L. Majewski, Chicago. former vice president, Deep Rock Oil Corp., and Keith Fanshier, petroleum editor, Chicago Journal of Commerce.

Two indictments containing the same charges against the group named were dismissed separately by federal Judge Patrick T. Stone of the western Wisconsin district, and federal Judge Walter C. Lindley, Danville, Ill., who has received jurisdiction over the indictment on which the government proceeded to trial in October, 1937. None of the five was called to trial when 46 other individuals faced the jury.

Mr. van der Woude was named in the first indictment, returned July 28, 1936, but not in the second, voted December 22, 1936, by a new grand jury after legality of the first grand jury had been questioned.

Messrs. Majewski and Fanshier were witnesses before the grand juries and had been subpoenaed but not called in the first trial that resulted in conviction of 30 individuals and 16 corporations, which was followed by dismissal of 11 defendants after verdict and granting of new trials to 15. Cases against the companies of Messrs. Majewski and Fanshier, as well as that of Mr. Harris, were dismissed during the trial.

National Scouts Meeting At Houston in May

Date for the 1939 convention of the National Oil Scouts Association, to be held in Houston, Tex., has been set for May 18, 19, and 20, according to Lee A. Adams, president.

At a meeting of officers and Gulf Coast leaders, Harry Leyendecker, Tide Water Associated Oil Co., was selected chairman of the convention committee, and C. P. (Jimmie) Chisholm, Pure Oil Co., was chosen co-chairman, with the following assistants: Hill C. Adams, Republic Oil Production Co.; J. W. Matthews, Arkansas Fuel Oil Co.; Elton Rhine, Phillips Petroleum Co.; Eric C. Beall, Gulf Oil Corp.; Jimmie Riddle, Humble Oil & Refining Co., and Frank E. Evers, Superior Oil Co.

Question of Schools' Ownership May Arise in Vacancy Suit

AUSTIN, Tex.—Suit by the state to recover 2,652 acres of West Texas land for R. L. York of Midland, Tex., sold by the outgoing land office administration, put a new turn on the vacancy question. The issue in this case is whether the University of Texas or the permanent school fund owns the land. If the courts sustain York's title the permanent school fund would be held original owner. York filed his claim in 1928, before any wells were drilled. There are now 61 wells.

Ickes Favors Permanent Connally Hot Oil Law

WASHINGTON, D. C.—Secretary Ickes has recommended to Chairman Harrison, of the Senate finance committee, passage of a bill to make permanent the Connally hot oil act, which the secretary said had "made a substantial contribution to the conservation of the oil and gas resources of the nation."

"Six oil producing states," he said, "which produce about 70 per cent of the national output, have enacted laws authorizing regulation of production to prevent waste and to avoid discrimination. The federal Government through the Connally law . . . supports the expressed policies of these states.

"Three other states, California, Illinois and Michigan, which in total produce about 24 per cent of the national output, have similar legislation under consideration and if such laws are passed the Connally Act would apply to petroleum produced in those states.

"I favor the continuance of the Connally Act as a step toward the protection of our needs for oil for the national defense and for the general welfare. The gains so far accomplished by some of the states and by the federal Government should not be lost and future legislation should be built upon this foundation of state and federal cooperation."

Unusual rig in Illinois

Pollution Legislation Likely to Be Passed

WASHINGTON, D. C.—The Barkley stream pollution bill, similar to that approved by both houses in the last Congress, endorsed by President Roosevelt and the National Resources Committee, has been reported by the Senate committee, but Senator Clark of Missouri has asked hearings on behalf of sportsmen who want a stricter federal control law. The House committee favors the Barkley bill.

Panhandle Group Votes to Oppose Federal Regulation

AMARILLO, Tex.—Resolutions calling for continued proration of Texas fields and opposing federal control were adopted at the annual meeting of the Panhandle Producers and Royalty Owners Association. Resolutions asking for laws to insure equitable withdrawals of gas in the Panhandle and favoring incorporation of the association were introduced.

Attendance was estimated at 250 producers and royalty owners. New officers elected were: Lynn Boyd of Pampa, president; Mel Davis of Pampa, Jack Nichols of Amarillo, and Jake Phillips of Borger, vice presidents, and George McGrath of Amarillo, secretary-treasurer. Speakers were Col. E. O. Thompson; Senator Clint Small, Amarillo; Don Knowlton, production superintendent, Phillips Petroleum Co., Bartlesville, Okla.; H. E. Schwartz, consulting geologist, Pampa, and Charles Van Vleck, I.P.A.A., Tulsa.

15,999-Bbl. Well Completed In Crane County, Texas

Gulf Oil Corp. No. 25 Waddell in Section 11, Block B-23, P.S.L. Survey, Crane County, Texas, made a 24-hour potential natural flow of 15,999 bbls. of oil and 6,000,000 cu. ft. of gas.

THE MARKETS*

CRUDE OIL: *Independent refining company advances schedule for North Texas and Red River area crude 4 cents per barrel. Its new schedule continues below posted quotations of major buyers. Crude prices were advanced in one North Louisiana field. The general crude market is steady.*

REFINERY: *All areas report increased gasoline shipments, with quotations slightly higher at a few points. Better movement in heavy fuels. Wax strong. Lubricants firm. Furnace oils weakest product.*

TANK-WAGON AND POSTED DEALER: *Standard of Indiana advanced gasoline, tractor fuel, furnace oils and kerosene at subnormal points in six states. Scattered advances in gasoline prices in other areas.*

FINANCIAL: *Oil stocks generally higher with important advances in Amerada Petroleum Corp. and Continental Oil Co. Average of 30 representative stocks for week ending March 11: High, 28.70; low, 27.44; close, 28.40. Week ending March 4: High, 27.93; low, 26.95; close, 27.79 (correction).*

ANNUAL REPORTS‡

	Net income	Earned per share
Pure Oil Co.:		
1938	$5,412,903	$0.38
1937	11,403,805	2.15
Union Tank Car Co.:		
1938	1,364,714	1.16
1937	2,016,412	1.70
American Republics Corp.:		
1938	§287,754	§0.22
1937	351,751	0.27
Root Petroleum Co.:		
1938	104,759	0.17
1937	§9,504	§0.17
Midwest Oil Co.:		
1938	931,624	0.93
1937	1,137,521	†1.14

*Detailed information in market section. †Before nonrecurring loss of $192,976 on storage oil contract. ‡Furnished by Carl H. Pforzheimer & Co., New York. §Deficit or loss.

Search for Oil With the Drill Begins in Forest City Basin

By DAL DALRYMPLE

ST. JOSEPH, Mo., Mar. 11.—The long anticipated search for oil in the Missouri sector of the Forest City basin—resulting from an intensive leasing campaign in Missouri, Kansas, Iowa and Nebraska, where independent operators and major companies have taken approximately 6,000,000 acres—was initiated March 7 when a wildcat at the northeast edge of Mound City, in Holt County, was spudded.

The bit had barely scratched the surface at that pioneer outpost before locations for several other northern Missouri wildcats were announced. One test already had been started near Topeka, Shawnee County, in the Kansas sector of the basin, and rumors of additional wildcats to be started in the northeastern part of that state were current at St. Joseph, Atchison and other cities where lease and oil men active in the area assemble. Lease activity continues unabated in the Iowa sector of the basin, some leasing is being done in Nebraska, and it is believed that tests may be drilled in those states this year.

All this activity without any production of consequence having been found in the basin makes this "oilless oil boom" one of the more amazing developments of an amazing industry.

It was an historic occasion for Mound City, Holt County and northern Missouri when the J. H. Everitt, W. E. Mills and others No. 1 Fred Spring, SW SW SE Section 30-62n-38w, was started last week. Indicative of local interest, the town declared a holiday, schools were dismissed, and hundreds of visitors from other Missouri towns, Iowa, Nebraska and Kansas mingled with Mound City folk in the shadow of the 84-foot derrick.

Location of this first Missouri test is on a saddle on a magnetometer high, worked out by Mr. Everitt. The geologic report on the area by the Missouri Department of Geology, and the log of a wildcat drilled near Forest City, a few miles south, several years ago also were decisive factors in staking the location. The test is scheduled to go to the St. Peter sand or 3,000 feet unless profitable oil is found.

Even while operators were setting surface casing at 250 feet in the Mound City well, preparations to start additional wildcats in Missouri were being completed. Those for which more or less definite announcement have been made include:

Eastern Drilling Co. No. 1 Williams, NW NW NE Section 28-53-32w, was a location 5 miles east of Smithville, Clay County. Rig was reported being erected and spudding was due this week. C. A. Balman of Kansas City heads the company.

W. F. Hopper of Hutchinson, Kans., and W. E. Webb, Chicago, let contract for drilling No. 1 Alice Black, NW NW NW Section 36-52-32w, to W. J. Osborn, Ada, Okla. Location is 12 miles southwest of Excelsior Springs and 5 miles northwest of Liberty, in Clay County. Tools have been shipped in and work was scheduled to start this week. Hopper & Webb have some 2,900 acres leased in the area, where shallow gas production was found and developed several years ago.

J. H. Everitt and others No. 1 Spring, SW SW SE Section 30-62-38w, wildcat near Mound City, first test to be started in northern Missouri since the lease activity began last summer, was spudded March 7 while many looked on. Photo courtesy St. Joseph (Mo.) News-Press

The Ada driller also had contract for W. H. Riddle, A. V. Peoples and W. H. Rhodes No. 1 Jones, C NW NE Section 16-58-17w, in Macon County. The operators are from Oklahoma City.

Patsy Oil Co. No. 1 Ed Lawrence, SE SE Section 24-63-40w, is the second Holt County test to be announced. Clarence Marcum, son of H. W. Marcum, head of the Patsy company, of Ada, Okla., has the contract. Location is 3 miles east and 1 mile north of Craig and 15 miles from the Everitt wildcat.

Location was reported to have been made by J. A. Turner and others at No. 1 Rule, NW cor. Section 20-53-33w, about 8 miles east of Platte City, in Platte County.

George W. Moore and others of Joplin, Mo., were said to have ordered rig material shipped to a location west of Osborn in DeKalb County, and on a block in Clinton and DeKalb counties. J. A. Barnes and H. W. Barnes of Independence, Kans., have the contract.

H. V. Elwell No. 1 Taylor, CEL NW Section 12-62-21w, west of Milan in Sullivan County, was expected to start drilling in the near future. This was the first definite location to be announced since the activity began in northern Missouri and rig was erected last fall, but drilling was delayed until spring.

The foregoing locations are in northwestern or North Central Missouri, that portion of the state to which most attention has been attracted. There also has been considerable leasing in northeastern Missouri, although it has been generally overlooked in field reports, and a wildcat is scheduled for that area.

Charles Delfeld and associates of Tulsa announced they have let drilling contract for a 2,500-foot test on an 11,000-acre block in Tigerfork Township, Shelby County, northeastern Missouri. Titles are being examined, and drilling equipment will be moved in as soon as condition of roads will permit. This was one of the first drilling blocks assembled in the Missouri play. John Merritt, Tulsa geologist, worked out the structure.

Operators are reported to be planning tests east of Mound City in Holt County; in southwestern Nodaway County, near Maitland; near Forest City, the Holt County town after which the basin was named; in the Kirksville district, Adair County, and near Bethany in Harrison County. These have not gone farther than the rumor stage, however, and definite information is lacking.

Although the bulk of wildcatting reported to date in the Forest City basin has been in Missouri, first actual drilling in the current campaign was started in the Kansas sector of the four-state area.

This was W. M. McKnab No. 1 Walter Fritz, SW SE NW Section 4-12-14, 10 miles west of Topeka, Shawnee County. It was spudded January 27 and at last report was drilling below 2,100 feet, progress having been delayed by caving hole. Ten-inch casing was set at 1,136 feet and 8-inch

casing at 1,718 feet. The wildcat is being drilled on a 5,000-acre block assembled by Harvey Motter. Excepting a shallow test in Leavenworth County, no other wildcats have been started in northeastern Kansas.

The geology of the Kansas sector of the basin is considered as favorable as that of the other three states but field development and exploration, is expected to be slower there than in the other states. This belief primarily is due to the fact that Kansas has strict proration laws, while no legislation restricting production has been passed in the other states. It also is thought that production, if found, will be at somewhat shallower depths in Missouri than in Kansas.

Started in Four Areas

Leasing began in four widely separated sections of the basin last summer. J. H. Everitt, the Hammon, Okla., operator who started the Mound City wildcat last week, began leasing in Holt County, northwestern Missouri, last August and is credited with initiating the activity in that state. About the same time, however, H. V. Elwell of Wichita started leasing in Sullivan and Grundy counties, north central Missouri, and soon had upward of 100,000 acres leased. Ed Engler of Hutchinson, Kan., began assembling acreage in Taylor County, Iowa, in June, ahead of the others and Motter & McKnab began work on their block in Shawnee County, Kan., last summer. Each of these operators started work independently of the others, and it was not until after some reports on geology of the basin had been issued and news of the independent leasing leaked out that the widespread activity got under way. Then innumerable independents and representatives of many companies, including some majors, became active.

The big activity first centered in Missouri, but soon spread to northeastern Kansas and then into Iowa and Nebraska. In Missouri and Kansas the leasing has settled down principally to the filling in of blocks and proving of titles, while large blocks are still being assembled in Iowa and Nebraska. Hundreds of geologists, and geophysical, seismograph and magnetometer crews joined in the play and have been active in many counties since last fall.

This city, being the largest town in the basin, now is the center of the greater activity. Several companies have opened offices here, a majority of the scouts work out of St. Joseph, and headquarters of the recently organized Missouri Oil and Gas Association have been established. Trenton and Chillicothe in Missouri and Atchison in Kansas have also become active centers. This is true to a lesser extent of some other towns in the basin.

Scouts working out of St. Joseph include Dan Cameron, Carter Oil Co.; Ed W. Morgan, Sun Oil Co.; R. M. Blackmore, Shell Petroleum Corp.; J. D. Lander, Pure Oil Co.; B. E. Derington, Phillips Petroleum Co., and Joe Sauer, Indian Territory Illuminating Oil Co. Charles L. Reed, Gulf Oil Corp., and Barry M. Smith, Texas Co., work out of Chillicothe. Richard Linehan is a special scout in the basin for Ohio Oil Co. The Phillips and Magnolia companies have opened land offices here; Carter Oil Co. has a land office at Kansas City, and Sells Petroleum Co., Longview, Tex., has an office at Bethany, Mo. Phillips Petroleum Co. has offices at Creston, Iowa.

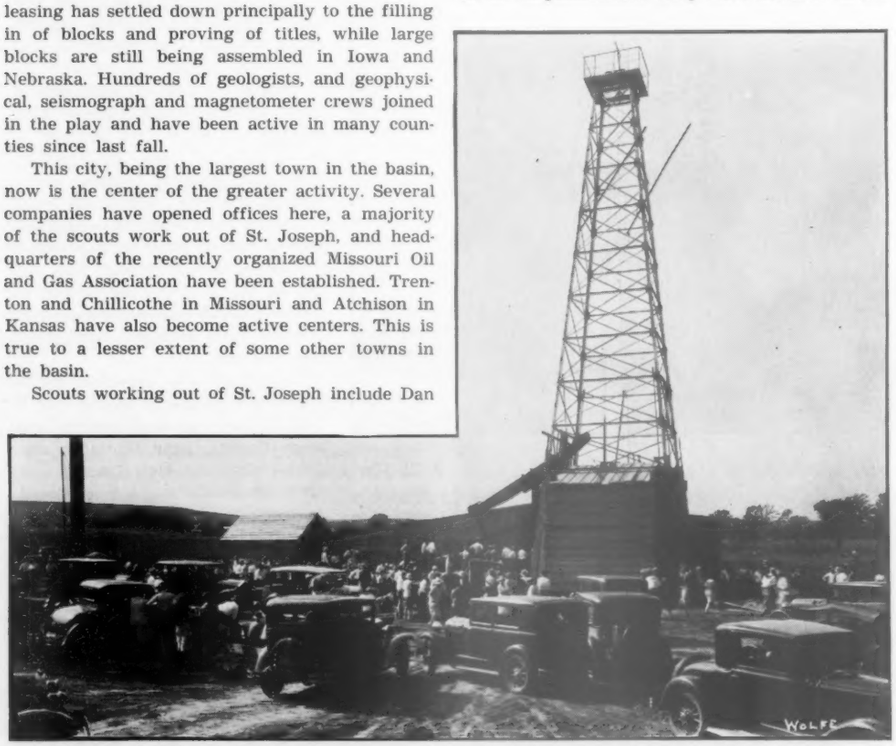
Many Companies Participate

Companies reported participating in the Forest City leasing, either directly or through representatives, include those previously mentioned and Tide Water Associated Oil Co., Sinclair Prairie Oil Co., Kessler Oil & Gas Co., Derby Oil Co., British American Oil Producing Co., Glimac Oil Co., Westgate-Greenland Oil Co., Vickers Petroleum Co., Mutual Oil & Royalty Co., Duncan Oil Co., W. C. McBride, Inc., Sands Petroleum Co., Pure Oil Co., Stanolind Oil & Gas Co., Skelly Oil Co., Atlantic Refining Co., Deep Rock Petroleum Corp., Continental Oil Co., and others—plus hundreds of independents.

The name "Forest City" was given the four-state basin after a 2,500-foot well was drilled on the W. F. Davis farm near the town of Forest City, originally on the Missouri River but now a few miles inland, due to the meandering of that stream. That wildcat was core-drilled in 1901, with the Missouri State Geological Department keeping the log. It is one of the few early tests drilled in the basin for which accurate records were kept. It drilled into salt water.

Many geologists have studied the basin since that early day wildcat was drilled, and a considerable number of them have reported favorably on its oil possibilities. They have declared formations that pay off in western Kansas, Illinois and elsewhere are present in the Forest City basin.

It will require the drill to determine if those formations contain oil. The well being drilled at Mound City and those to be started at other locations are seeking the answer. Many of the wildcats undoubtedly will be failures, but the entire basin seems due for a thorough checking by the drill before the productive possibilities are determined.



W. M. McKnab No. 1 Fritz, SW SE NW Section 4-12-14, west of Topeka, Shawnee County, Kansas, first wildcat to be started in the Forest City basin as a result of the current leasing campaign, was drilling ahead below 2,000 feet. A crowd of interested spectators was present when the test was spudded. Photo courtesy Topeka State Capital

U. S. Supreme Court Agrees To Review Texas Case

WASHINGTON, D. C.—The Supreme Court agreed to review a decision quashing indictment against three Texans charged with conspiracy to violate the Connally Act of 1935, which prohibits the interstate shipment of oil produced in violation of state conservation laws.

The men were charged with transporting contraband oil from the Conroe field, Texas, to Marcus Hook, Pa. They are H. E. Hines, Neal Powers and Renne Allred, Jr. The Government appealed from the Southern Texas Federal District Court which dismissed the case.

The Connally Act was to have expired June 16, 1937, but Congress extended its application to June 30, 1939. The District Court found that the first Connally Act "by its own terms expired June 16, 1937," and that there was no provision in the second act to "preserve the right to prosecute violations of the first act."

The Government contended that where a statute is amended by substantially reenacting it, the first offenses may be prosecuted.

Tanker Mobilfuel Launched For Socony-Vacuum Co.

An important addition to the national merchant marine, the new tanker S. S. Mobilfuel, built by Bethlehem Steel Co. for Socony-Vacuum Oil Co., Inc., was launched recently at Sparrows Point Yard, Maryland. Mrs. George V. Holton, wife of a vice president and director of Socony-Vacuum, was the sponsor.

The new tanker, 501 feet 7 inches in length, has a deadweight of 16,100 tons and is capable of carrying 133,000 bbls., or 5,580,000 gallons of oil. The Mobilfuel is one of two vessels contracted for with Bethlehem Steel Co. The Mobilube will be ready for launching in approximately two months. The contract involves close to $4,500,000.

Hopkins Becomes Chairman of I.P.A.A. Subcommittee

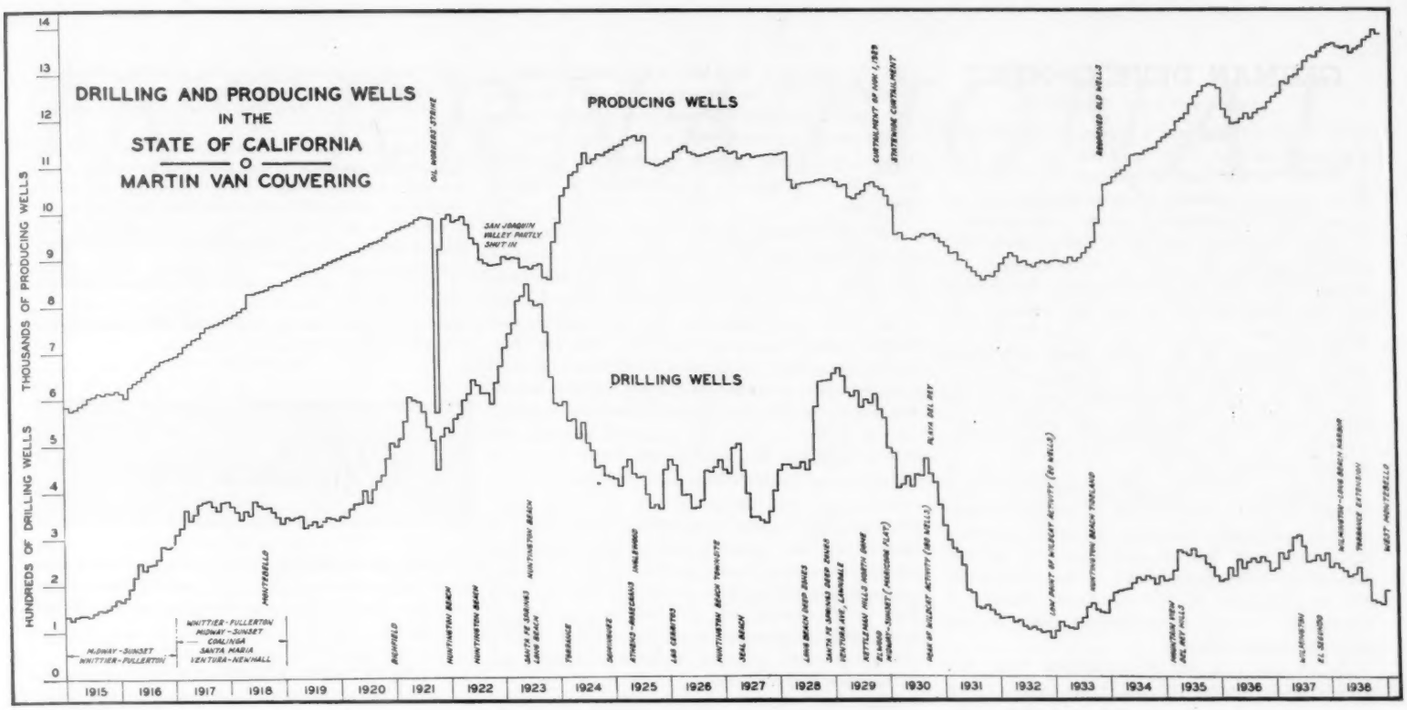
Reduction of unnecessary and unprofitable drilling, a cardinal point in the program of the Independent Petroleum Association of America, will be urged through 1939 with the same forcefulness. Directly in charge is the subcommittee of the committee on balance of supply with demand. Edwin B. Hopkins, vice president of American-Maracaibo Co., Dallas, Tex., will be chairman. He was a member of the subcommittee last year and assumes the responsibility discharged last year by R. A. King, president of King Oil Co., Wichita Falls, Tex. Mr. King continues as a member.

Oil Restrictions Sought By Coal Commission

WASHINGTON, D. C. — Government regulation of oil and other competitive fuels was advocated by Chairman Percy Tetlow of the Bituminous Coal Commission before the House appropriations committee. He said the Guffey Act can be successful without such regulation but it would be highly desirable.

Hearing on Connally Act

WASHINGTON, D. C. — Demand for hearings on making the Connally Act permanent was filed by National Oil Marketers Association. The bill has already been reported by the Senate subcommittee. A similar bill is before the House committee on interstate and foreign commerce.



California Operators Vote on Curtailment

By L. P. STOCKMAN

LOS ANGELES, Calif., Mar. 13.—The California oil industry is confronted with an overproduction of crude, a declining market for crude and products due to lower offshore movements and an approaching shortage of storage facilities. The problem is to devise some method of reducing crude production before tankage facilities are filled to capacity. This means crude production must be reduced at least 50,000 bbls. per day. There is only tankage enough to take care of another 60 days' production and this only by renting all available tankage and shifting of stocks. During January, 2,247,188 bbls. of crude and refined oil was added to stocks and a preliminary check indicates this was exceeded during February.

At meetings in Bakersfield and Los Angeles, operators appointed an Emergency Executive Committee and a Fact Finding Committee to take action. The Fact Finding Committee, composed of W. H. Geis, Dana Hogan, Victor Rossetti, E. G. Starr and W. S. Rosecrans, made its report to the Emergency Executive Committee which presented it to operators at a general meeting in Los Angeles, March 9. Ballots were sent to every oil producer and a general meeting has been called for March 15 to take definite action.

Ernest E. Pyles, Hancock Oil Co., chairman of the Emergency Executive Committee, announced that Universal Consolidated Oil Co. had agreed to reduce production in the Rosecrans field to the maximum of 300 bbls. per day per well. This will permit other operators to effect similar reductions. Chairman Pyles urged large landowners to relent in drilling demands upon companies; that independent refiners cease purchasing "hot" oil under the market; that the Corporation Commission deny permits to promoters unless they conform with curtailment; that bankers, in possession of large tracts of oil land, cooperate with curtailment and that taxes be reduced.

Fact Finding Report

The report of the Fact Finding Committee upon which operators will ballot recommended that all producing wells be classified into three groups. Group 1, wells with potentials of less than 25 bbls. per day; Group 2, wells with potentials above 1,000 bbls. per day; Group 3, wells with potentials ranging from 25 bbls. to 1,000 bbls. per day. It was recommended that wells with potentials of 25 bbls. be allowed to produce their maximum and the group from 25 bbls. to 1,000 bbls. be given allotments on a graduated basis. Wells above 1,000 bbls. would be given a maximum ranging from 250 to 300 bbls. per day. Approximately 10,800 wells are included in the group with potentials of 25 bbls. per day or less.

One recommendation discouraged unnecessary drilling. It was also recommended that no additional deep zones be developed or produced. With respect to new wells the report says:

"That the new well and the new zone problem is one of the most important in the proration procedure as well as the most difficult to solve, is well recognized. The answer has not been found. At present in California, and except by discouraging all unnecessary drilling and by the alleviation of lease obligations, no relief is in sight. Consequently, until additional study is completed by the Central Committee, the basis of allotments for new wells should be similar to that of other wells. A new well committee should be appointed within the Central Committee, charged with responsibility to determine the causes for any unnecessary or excessive drilling, and to suggest what in its judgment seems best to discourage such practices, such as encouraging operators to avail themselves of the longest permissible time between wells and modification of drilling obligations."

Transfer of Allotments

The committee recommended:

"That aggressive transfers should not be permitted; that defensive transfers should be permitted only in exceptionally justifiable cases after notice to and approved by the umpire and the Central Committee; that the umpire should keep a record of all approved transfers indicating the wells from which and to which the transfer is made and that no other type of transfer be permitted."

It was also recommended:

"That the Central Committee review the possibilities of including gas production as a factor in curtailment procedure. We have been advised that in part the present storage situation is attributable to the displacement of fuel oil through the introduction of natural gas as fuel, mainly to industries. We view it as a wasteful practice to blow gas to the air in some fields while at the same time a more fortunate field absorbs the gas market. The proration or ratable taking of gas as a conservation measure should be studied."

Chairman E. E. Pyles said a total of two billion feet of gas was blown to the air in southern California during December, while the gas companies moved large quantities into southern California from San Joaquin basin fields. The Fact Finding Committee recommended a survey be made of this condition in an effort to rectify matters.

Development Work

The accompanying chart indicates the effect of the drilling moratorium and the decreasing tendency since the middle of 1937 when the present crisis was starting.

One feature in connection with existing conditions is that Shell Oil Co. has again started to ship fuel oil to the East Coast for domestic consumption. It has been several years since any great quantity of crude or fuel oil has been moved in the intercoastal trade as the price structure on the Pacific Coast has been prohibitive. So far this year, 324,591 bbls. of fuel oil has been moved to the East Coast for domestic consumption.

GERMAN DEVELOPMENT

(Continued from Page 26)

for these two fields, and it seems as though quite a number of the wells in these districts have been shut in for lack of refining facilities. The Heide field in Holstein likewise promises to become a field of substantial caliber. Approximately 20 wells have been drilled in this region with marked success, although no reports about the actual output are being published. The region has the distinction of having the deepest well in Europe with a depth of more than 11,500 feet.

With respect to the other fields mentioned, no detailed information is available. However, with the exception of the field near Forst in Baden, these new discoveries will probably not command the same importance as Reitbrook, Moelme, Gifhorn and Heide.

At present there are approximately 150 wells drilling in the various fields, of which between 60 to 70 are being drilled with governmental subsidies. It is said that for 1939, based on the success in the three prior years, at least 200 wells will be drilled on 68 new structures, discovered through geophysical investigations made by the Reich geological survey.

As in the case of the Reitbrook field, the Zistersdorf-St. Ulrich district in the Ostmark has all the earmarks of becoming a field of substantial proportions. The field has a length of more than 5 miles, with approximately 20 wells producing. Production comes from between 3,000 and 3,500 feet. Although no detailed information as to the producing capacity of the wells is available, the production for 1938 is estimated to reach at least 525,000 bbls. In 1937 the total production of the Zistersdorf area was 250,000 bbls., while in 1936 it amounted to only 56,000 bbls. For 1939 a production of more than 1,000,000 bbls. is indicated through reliable sources and for 1940 a total of 2,500,000 bbls. is mentioned.

As Germany is motorizing on a vast scale, consumption of all petroleum products is increasing rapidly. In spite of the strides she has made in the manufacture of motor fuel through synthetic methods, Germany's imports of petroleum products of all kinds are estimated to have shown an increase in 1938 of about 20 per cent against 1937, reaching a total of 36,000,000 bbls. These increased imports indicate it will take Germany still quite a number of years before she will attain self-sufficiency under the second four-year plan.

There is, however, every reason to believe her present concerted efforts to develop the oil industry will show marked results in 1939, due, on the one hand to a substantial increase in the production of crude oil and, on the other hand, to a further increase in the manufacture of oil products through synthetic methods.

Motor Fuel

Motor fuel produced in Germany is expected to total approximately 20,000,000 bbls. in 1939, compared to approximately 15,500,000 bbls. in 1938. Part of this increase will come from new hydrogenation plants completed during the latter part of 1938 in the Ruhr district. Plants now producing motor fuel synthetically from coal have been increased in capacity by about 4,800,000 bbls. by a construction program completed largely in 1938. Production of gasoline from coal last year amounted to approximately 11,000,000 bbls. and will be even greater in the current year because of the increased capacity. The total apparent consumption of petroleum products and motor fuels in Germany and what was formerly Austria is about 44,000,000 bbls. annually.

The consumption requirements of Germany and its currency problem have contributed to establishment of barter arrangements with Mexico. Contracts indicate Germany will receive from 20,000,000 to 25,000,000 bbls. of crude in 1939 from Mexico, providing current government operation of Mexican properties is continued throughout the year.

Among leading projects for developing the chemical industry in Austria following incorporation into Germany is establishment of an industry for producing synthetic gasoline upon a large scale, based upon Austria's extensive brown coal deposits hitherto largely neglected. The I.G. Farbenindustrie A.G., dominant factor in the German synthetic gasoline production and pioneer in the liquefaction of coal, is well advanced on plans for an extensive Austrian synthetic gasoline industry utilizing the Farbenindustrie's improved Bergius catalytic-hydrogenation process.

Although by virtue of the four-year plan Germany now boasts of producing approximately half of her total consumption of light motor fuel oils from domestic resources, her imports of mineral oils last year increased nearly 15 per cent over the preceding year to 4,956,750 tons. Including Austria and Sudetenland since their respective annexations, Germany's imports reached approximately 5,500,000 tons.

Deducting exports, the net imports of the old reich, including Sudetenland after October, still amount to 4,761,792 tons. Most of the increase is due to imports of benzine and Diesel oil, which suggests great quantities are being stored.

The principal supplying countries were:

Country—	Tons in thousands	Marks in millions
Venezuela	2,233	85.0
United States	1,183	84.4
Rumania	450	36.0
Mexico	434	19.8
Iran	188	8.1
India	158	14.0
Peru	130	8.5
Russia	79	4.8
Others	101	6.8

This tabulation reveals vast differences in Germany's import prices. Germany paid the United States almost identically what she paid Venezuela for twice as much oil. But the differences are equally pronounced in respect to quantity and prices in comparison with the preceding year, shown in the following tabulation, where the first set of percentages represents the increase or decrease of quantities and the second the increase or decrease of costs compared with 1937:

Venezuela	38.3	46.3
United States	18.2	22.5
Rumania	—15.4	—10.9
Mexico	23.0	45.7
Iran	26.8	3.8
India	21.9	14.8
Peru	—13.3	—13.3
Russia	—73.9	—67.8
Others	20.2	36.0

Significant is the drop of 73.9 per cent in imports from Russia within one year. But this is in line with the development of Russian oil exports generally and Russo-German trade particularly. German imports from Russia dropped from 65,100,000 marks in 1937 to 47,400,000 marks in 1938. German exports to Russia dropped from 117,400,000 marks in 1937 to 31,800,000 marks in 1938.

Conservation Division Says State Lost Opportunity

WASHINGTON, D. C.—Director George W. Holland of the Petroleum Conservation Division, Department of the Interior, in a report to the House appropriations committee, said:

"A few years ago one oil and gas field was wasting more than a half-billion cubic feet of gas each day, equal to at least one-half of the natural gas burned in the United States daily by all the domestic consumers. Through the efforts of the department and with the cooperation of the state, this waste has been substantially reduced.

"The same situation was presented by the petroleum conservation division to the local authorities in a sister state but that state 'was not ready for controlled production' with the result that after operating about a year, it is now reported that out of a possible $32,000,000 worth of oil calculated recoverable only $7,000,000 worth will be recovered by methods known today.

"We expect, as in the past, to cooperate with the enforcement agencies of the states, and try to get uniform oil and gas conservation laws and uniform regulations under those laws."

Obituaries

JOHN HARRINGTON, 45, Chicago district sales manager of the Reading, Pratt and Cady division of the American Chain & Cable Co., was killed by a train near Galena.

LARMOUR "MIKE" ADAMS, 54, for 15 years an employe of Metric Metal Co. and later associated with Pittsburgh Equitable Meter Co., died at Erie, Pa., recently.

WILLIAM F. PARRISH, 65, chairman of the lubrication engineering committee of the American Society of Mechanical Engineers, died last week in New York. He had served with the Vacuum, Indiana, Texas, and Sinclair companies and also with the Signal Corps.

JAMES K. KERR, 75, a pioneer in the oil industry, died at Miami Beach, Fla., last week. He was born near Titusville, Pa., and was one of the founders of the Ohio Oil Co. and an executive of that concern for almost 50 years. He also served as president of Lincoln Refining Co.

JOSEPH BURT, 80, pioneer West Texas oil man died last week at Brownwood, Tex. A native of Neversink, N. Y., he began his career in the oil business in western Pennsylvania. He moved to Kansas, then to Oklahoma and to Texas in 1912. For a time he was with the leasing department of Texas Co., but later became a producer.

MICHAEL LECHNER, 78, who pioneered in the fields of Pennsylvania, Ohio, Indiana, Illinois, and Wyoming, died recently. His first association was with the late J. J. Donnell in the Bradford field. He spent 11 years in the Bridgeport, Ill., field contracting for Ohio Oil Co., then went to Wyoming, remaining in that state until his retirement in 1924.

ROBERT L. HAGUE, 59, manager of the marine department of Standard Oil Co. (New Jersey), died suddenly in New York March 8. He was born in Lincoln, R. I., left Worcester Polytechnic Institute at an early age and ran away to sea. Later he learned the machinist's trade in a Worcester plant and then turned to railroading as a fireman and engineer. In 1904 he went back to sea as an oiler and rose to become an engineer, and assistant superintendent of construction for American Hawaiian Co. He left this post in 1909 to be assistant superintending engineer for Standard Oil Co. of California, and then marine superintendent. He served as director of construction on the Pacific Coast for the Shipping Board during the war and in 1920 joined the marine department of Standard of New Jersey, shortly becoming manager. He was vice president of Standard Shipping Co. in 1927 and in 1937 was elected vice president and director of the parent New Jersey company.

INTERNATIONAL

Mexican Conferences Continue as Bolivia Confirms Seizure

Seizure of privately owned oil properties in Central and South America again occupied the spotlight of international oil interest last week. The conversations in Mexico City between Donald R. Richberg, representing companies whose properties were seized by the Mexican Government, and President Cardenas were reported by the national press bureau as pointing to a possible solution.

Meanwhile, Standard Oil Co. of New Jersey issued a statement declaring that Bolivia was in reality the first government to seize private property with apparent impunity.

Concerning the conference between Mr. Richberg and President Cardenas a statement was issued by D.A.P.P., Mexican Government publicity bureau, that "it is expected that in the course of the week it will be possible to formulate a plan of accord, and that only technical details will remain for the study of experts."

There has been no mention of the basis upon which the conversations are proceeding, but the inference remains that it involves a long-term lease with management of the properties to be invested in the companies.

The preliminary discussions were confined to broad discussions of general principles. President Cardenas is reported by the New York Times correspondent to have instructed Mr. Richberg and Doctor Najera, Mexican ambassador to the United States, to prepare concrete examples of the results of the application of these principles.

Mr. Richberg made the following statement after the initial conference:

"The initial discussion with President Cardenas was entirely informal. We did not spend our time debating the merits of past or present controversies. We discussed the basic principles which would determine future relations between the Government of Mexico and citizens of other countries contributing money or services to the development of the business and resources of Mexico.

"The primary subjects of our exchange of views were:

"First, the fixed purpose of the Mexican Government and people to control their own destiny.

"Second, the essentials of cooperation with citizens of other countries in matters of domestic and international business which will advance the welfare of the Mexican people.

"It is my impression that President Cardenas is deeply interested in the development of a distinctively Mexican program concerning the relations between government, labor and property, which should not be labeled as communism or fascism or capitalism, but which would be a natural product of Mexican needs and desires and conditions, which are, in many respects different from those of any other country.

"The political and economic problem which we are attempting to solve is a world-wide problem of great difficulty. The best hope of a solution acceptable as having permanent benefits to all concerned lies in maintaining such an atmosphere of good-will, of mutual confidence and patient tolerance of differing opinions, as seemed to me to characterize the discussion."

Submission of the dispute between Standard Oil Co. of Bolivia and the Bolivian Government to an international tribunal of arbitration was suggested by Standard Oil Co. of New Jersey in a statement which pointed out there is a striking similarity between the expropriation in Mexico and the "forfeiture" of the oil properties in Bolivia. A decision has just been handed down by the Bolivian court upholding the government's seizure in that country. The New Jersey statement says:

"In both countries the seizures were preceded by violent attacks against private oil interests designed to arouse the populace. In both countries the attacks were intensified when the properties were seized to maintain popular support at fever pitch. In both countries it has been repeatedly stated that the American Government was not interested in the fate of its nationals where these nationals were the owners of confiscated oil properties. In both countries the passing of time creates a tacit belief that there is no accounting required or penalty to be suffered for the illegal seizure of foreign capital.

"It is notorious that in both Mexico and Bolivia the practice has been to expropriate or to otherwise confiscate properties which have been painstakingly developed and in which American owners have expended large sums. Bolivia, claiming 18,000,000 to 20,000,000 hectares of potential oil-bearing lands according to the government petroleum agency, has been solely interested thus far in the exploitation of the 279,174 acres taken from the Standard Oil Co. The fact that the Standard Oil Co. was the only entity willing to risk any money on the development of Bolivia's then unknown oil resources is entirely lost sight of, as is the fact that the company invested $17,000,000 on which it has not yet received either income or amortization.

"The community of interest between two countries embarked on a policy of confiscating foreign properties is frankly recognized by the two countries. The Bolivian Government, through its minister in Mexico, recently bestowed its highest honorary decoration upon President Cardenas. On June 20, 1938, in a public statement, the vice president of Bolivia referred to the 'ideological influence on our countries,' of which Mexico is 'the luminous directing example,' and concluded, 'In a short time we shall achieve the victory of nationalizing Bolivian petroleum . . . attempting to reach a Socialistic status similar to that of Mexico.' "

New Prospecting Licenses Granted In England

The British secretary for mines announces that a further four prospecting licenses have been issued by the Board of Trade. Three have been granted to D'Arcy Exploration Co., Ltd., covering about 197 square miles in the county of Lancaster, including the town of Formby; about 46 square miles in the counties of Derby, Leicester and Stafford, including the town of Melbourne, and about 143 square miles in the county of York, including the town of Scarborough. One license has been granted to the Anglo-American Oil Co., Ltd., covering about 149 square miles in the counties of Fife and Kinross, including the town of Dunfermline.

New High Record In Production Set by Y.P.F. Last Year

Dwindling producing potentialities of private companies in Argentina where the government policy is to the exclusion of all but the nationally sponsored Yacimentos Petroliferos Fiscales concern was reflected in statistics for 1938 received last week. Out of total output of 17,077,600 bbls. for the year, which, incidentally is a new high record, Y.P.F. produced an aggregate of 8,999,183 bbls., or 52.7 per cent. Private companies produced 8,078,417 bbls., or 47.3 per cent.

The participation in Argentine petroleum production has been approximately reversed in the past three years. In 1935, Y.P.F. produced 6,134,536 bbls. out of a total of 14,729,101 bbls., or about 41 per cent. Private companies produced 8,594,565 bbls., or 59 per cent of the aggregate in 1935.

The Comodoro Rivadavia field remains the most substantial producing district in Argentina accounting for 14,111,729 bbls. of the 1938 total. The division of 1938 production by fields and as between the national and private companies is shown in the accompanying table (figures in barrels of 42 U. S. gallons):

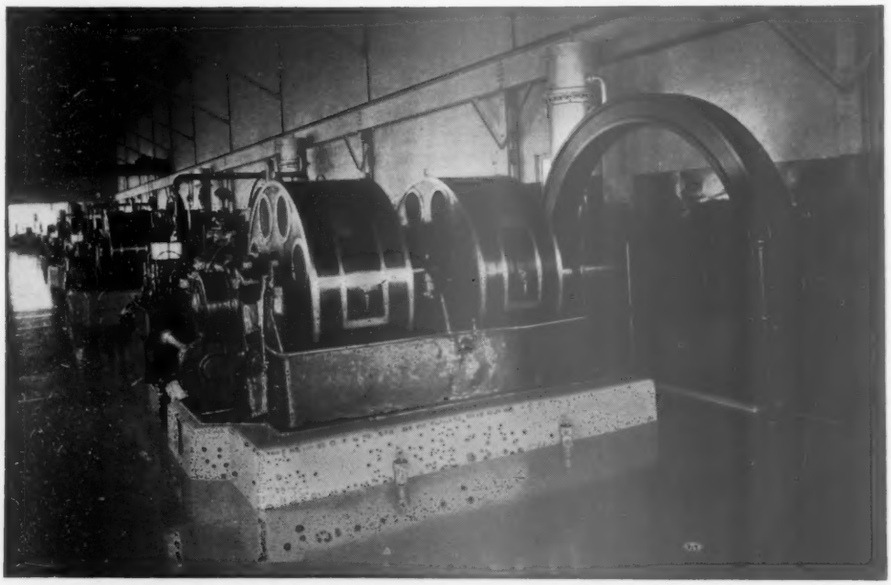
Field—	Y.P.F.	Private	Total
Comodoro Rivadavia	8,047,436	6,064,293	14,111,729
Plaza Huincul	466,334	520,533	986,867
Mendoza	183,444	17,714	201,158
Jujuy	88	.....	88
Salta	301,881	1,475,877	1,777,758
Total	8,999,183	8,078,417	17,077,600

The 1938 production by Y.P.F. compares to output of 7,937,969 bbls. in 1937, an increase of about 13 per cent. In contrast, the private companies produced about 4 per cent less crude oil in 1938 than in 1937. The largest percentage increase registered by the National company was in the Mendoza region where Y.P.F. production in 1938 totaled 183,444 bbls., compared to 86,570 bbls. in 1937. From a standpoint of volume, however, the Y.P.F. largest increase was registered in the Comodoro Rivadavia field where the 1938 yield was higher by 925,426 bbls. than reported by the national company for 1937.

New Colon Completion

Colon Development Co., Ltd., has completed another substantial producer in the Tarra field (Las Cruces) in western Venezuela. The new producer, No. T-94, was completed flowing at the rate of 490 bbls. per day through seven-eighths inch choke.

Pipe Line Activity



Engine side of Gulf Pipe Line Co. station 3 miles east of Midland, Tex. The engines are separated from the pumps by a fire wall

United Gas Pipe Line Moving to Shreveport

SHREVEPORT, La.—The contracts for erection of a seven-story office building in Shreveport to house the offices of United Gas Pipe Line Co. and affiliates, are expected to be awarded in the near future. The announcement that the plans are nearing completion came from N. C. McGowen, president of the company. The change will include the centralization of the head offices of the company in Shreveport, and will require the transfer of about 300 families from the Houston office.

Contract for Corpus-Rosa Line Has Been Signed

FORT WORTH, Tex.—The Corpus-Rosa Pipe Line Co. has signed contracts for a pipe line from the La Rosa field in Refugio County to the Corpus Christi Channel.

The line will be a 6-inch welded carrier from the field to facilities acquired on the ship channel, a distance of 27 miles. In addition, a 4-inch line is to extend about 10 miles north from La Rosa to the Refugio field. Storage facilities are to be erected on the channel and at La Rosa.

Most of the oil acquired will be from Coronado Exploration Co., Dallas, main developer in the La Rosa field, although other connections will be taken. The pipe line company has agreed to take up to 100,000 bbls. in lots from Coronado under a three-year contract with all the oil to go into the export market. Crude not shipped abroad will be processed by the Terminal Refining Co. at Corpus Christi. T. E. McCardle of Shreveport, La., is president of the Corpus-Rosa company.

Delegation to England On Alberta Crude

EDMONTON, Alberta.—It is expected that a delegation representing Alberta oil interests will leave for England in April to confer with the British Government in reference to possible marketing of Turner Valley crude there.

The delegation will, it is expected, be headed by N. E. Tanner, minister of lands and mines, with Dr. G. S. Hume of the Geological Survey of Canada, Walter S. Campbell, formerly president of the Alberta Petroleum Association, and possibly W. F. Knode, chairman of the Alberta Conservation Board.

The delegation will be primarily concerned with the marketing of crude, but the project of a pipe line from Calgary to the head of the lakes, to facilitate crude shipments, will also be discussed. The Alberta Government has been in touch with British officials since last summer in reference to development and utilization of Alberta crude, particularly for British Admiralty purposes.

Tentative proposals in reference to the pipe line involve financing by banking and private interests in England with guarantees as to available crude in Alberta and markets in the United Kingdom.

Stanolind Offers to Buy Nowata County Oil

In order to aid in relieving a situation which has developed in the stripper areas of northern Oklahoma, Stanolind Crude Oil Purchasing Co. has offered to purchase 1,750 bbls. of crude oil in Nowata County from National Refining Co. The National company earlier in the month announced it was purchasing more crude than was required at its Coffeyville, Kans., refinery. The company secures the bulk of its crude supplies for the refinery from stripper wells in northern Oklahoma and Kansas.

The National company originally proposed to reduce the price it was paying for the crude. This action was opposed by producers who since have been endeavoring to work out an arrangement which would relieve the National company of surplus crude. Under the Stanolind plan it would purchase 1,750 bbls. of crude daily from National delivered to its line in Nowata County, paying the posted price plus 5 cents per barrel based on 100 per cent tank tables. The Phillips Petroleum Co. is purchasing part of the National's surplus crude under a similar arrangement.

Work Started on Line In Rio Grande Valley

McALLEN, Tex.—Work is to start on the new 55-mile 6-inch pipe line from Duval County to the Kelsey-Bass or Humble field in southwest Jim Hogg and northeast Starr County. The line, to be built by the Humble Pipe Line Co., will furnish the second pipe line outlet for lower Rio Grande Valley oil fields. The line connects with Humble's main line to tidewater at Corpus Christi.

Humble to Lay 26-Mile Line To Navarro Crossing Field

DALLAS, Tex.—Plans for immediate construction of a 26-mile 4-inch pipe line from the Navarro Crossing field of Houston County to its Fairfield station have been announced by Humble Pipe Line Co. The all-welded line will give the field its first pipe line outlet, the field's present daily allowable of 315 bbls. being moved by truck.

Natural Gas

Hugoton Proration Test Case Is Continued

WICHITA, Kans.—The Republic Natural Gas Co.'s suit challenging constitutionality of proration regulations for the Hugoton gas field was continued by federal Judge Richard J. Hopkins upon consent of counsel.

Edward F. Arn, Corporation Commission attorney, said the continuance was agreed upon to permit the commission to act upon a Republic request for a rehearing on the regulations.

Proration regulations were fixed for the pool by the commission last September, suspended upon application of operators, and reinstated January 1. The regulations required ratable taking of gas and fixed well allowables for the 272-well pool.

Republic, which owns 90 wells, sued to enjoin the commission from enforcing the regulations, contending they would deprive the company of a part of its present market for gas.

Lloydminster Gas May Supply Saskatoon

SASKATOON, Saskatchewan.—Supporting the application of Walter F. Thorn and associates for a 20-year franchise to supply natural gas to Saskatoon, detailed information regarding the Lloydminster field, the proposed source of supply, was submitted to the Local Government Board, whose approval is necessary.

Prof. F. H. Edmonds, of the University of Saskatchewan department of geology, reported that six wells in the field have proven approximately 4,000 acres but the limits of the field are not yet determined. The beds underlying the field were remarkably flat, the easterly dips varying from 15 to 40 feet per mile, with little variation north and south.

H. R. Davis, consulting engineer of Buffalo, N. Y., estimated the aggregate open flow of the field at 42,000,000 cu. ft. a day; and the probable requirements of Saskatoon as 1,168,000,000 cu. ft. for the first year, increasing to 2,900,000,000 cu. ft. about the fifth year.

E. Swain, supervisor of mines for Saskatchewan, reported the field favorable for additional drilling.

Following approval by the Local Government Board, the franchise proposal will be submitted to the ratepayers of Saskatoon. If approved by them, the Thorn interests, backed largely by United States capital, will undertake construction of a pipe line and distributing system involving an outlay of approximately $4,500,000.

Kansas Gas Allowable Set by Commission

WICHITA, Kans., Mar. 13.—Allowable schedules fixing March gas production for Kansas' four major pools at 4,058,000,000 cu. ft. were issued to operators by the Corporation Commission as follows: Houghton, 2,385,000,000 cu. ft.; Otis, 857,000,000 cu. ft.; Burrton, 444,000,000 cu. ft., and Lyons, 372,000,000 cu. ft.

Refinery Expansion

Tentative Program for W.P.R.A. Meeting at San Antonio, Tex.

The tentative program for the twenty-seventh annual meeting of the Western Petroleum Refiners Association at the Plaza Hotel, San Antonio, Tex., March 19-21, follows. Discussion will follow each paper.

Sunday, March 19

9:30 a.m. Registration—mezzanine floor.

Golf—San Antonio Country Club.

7 to 9 p.m. Cocktail party and buffet supper (informal), compliments of Ethyl Gasoline Corp., Plaza roof.

Monday, March 20

9:30 a.m. Technical session, ball room, mezzanine floor.

F. W. McCurry, Derby Oil Co., Wichita, Kans., presiding.

Introductory remarks, L. D. Mann, Cities Service Oil Co., Tulsa, chairman manufacturing committee.

Catalysis, Octane, and Economics, Wright W. Gary, M. W. Kellogg Co., New York City.

Developments in Steels for Oil Refinery Service, Martin Fleischmann, Timken Roller Bearing Co., Canton, Ohio.

2 p.m. General session, ball room, mezzanine floor.

H. T. Ashton, Socony-Vacuum Oil Co., Lubrite division, St. Louis, Mo., presiding.

President's annual address. C. M. Boggs, Kanotex Refining Co., Arkansas City, Kans.

Appointment of committees.

New Attitudes, Victor H. Scales, American Petroleum Institute.

The Economic and Public Problems of the Oil Industry, Glenn Griswold, Glenn Griswold Associates, New York.

Public Announcements of Antitrust Law Enforcement Policies, Fayette B. Dow, National Petroleum Association.

Tuesday, March 21

9:30 a.m. Technical session, ball room, mezzanine floor, W. M. Carney, Lion Oil Refining Co., El Dorado, Ark., presiding.

Thermal Cracking Developments, Dr. E. R. Smoley, Lummus Co., New York.

The Action of Inhibitors on Polymer Gasoline, W. B. Ross and L. M. Henderson, Pure Oil Co., Chicago.

2 p.m. General session, ball room, mezzanine floor. Roy B. Jones, Panhandle Refining Co., Wichita Falls, Tex., presiding.

The Present World Situation and Its Implications for the Oil Industry, Henry M. Busch, Western Reserve University, Cleveland, Ohio.

Petroleum's Contribution to Aviation's Rapid Progress, Brig. Gen. F. L. Martin, Shreveport, La.

Committee reports.

Committee on nominations.

Election of officers and directors.

Report of committee on resolutions.

Meeting of board of directors.

Plan for Consolidating Refining Operations at Cut Bank, Mont.

Announcement that plans are being considered for a refinery at Cut Bank, Mont., in lieu of two plants, one at Shelby, Mont., and one at Cut Bank, was made this week by J. W. Johnson, president of Producers Refining Co., of Shelby.

It is reported that the plant will have a capacity of 3,000 bbls. per day and will handle approximately 1,500 bbls. of oil of the Producers Refining Co. group and 1,500 bbls. of Glacier Production Co. production.

The announcement follows:

"Following conferences between Producers Refining Co., representatives of Socony-Vacuum Oil Co., and Glacier Production Co. held last week, Producers Refining Co. has temporarily withheld its Shelby refinery construction plans and is considering an alternate proposal which would provide for the combining of Socony-Vacuum Oil Co.-Producers Refining Co. crude and marketing plans through a refinery processing arrangement with the Glacier Production Co. through a refinery to be constructed by the Glacier Production Co. at Cut Bank.

"No final plan has been definitely decided upon but it is expected that negotiations will be completed to permit a definite announcement being made at an early date."

Heretofore, Producers Refining Co. had planned a 2,000-bbl. refinery at Shelby, while Glacier Production Co. was going ahead with a 1,500-bbl. refinery at Cut Bank. Socony-Vacuum company was reported to have agreed to handle the production of the Shelby plant, the construction of which was to have been financed by the 18 producers who had organized the Producers Refining Co.

Canton Will Add New Cracking Unit

Canton Refining Co. has started construction on the up-shot heater as part of the 500-bbl. Dubbs cracking unit being installed at the company's Canton, Ohio, refinery. Construction of the heater is being handled through the Born Engineering Co.

Taxman Will Add To Illinois Refinery

J. J. Taxman, of the Taxman Refining Co., is planning the installation of cracking and lead blending equipment at the plant of Advance Refining Co. at Centralia, Ill., successor to the old Power Oil & Refining Co. control of which Mr. Taxman purchased at court sale recently. This will be the first refinery in the Sucker State area to be so equipped. Its products will be sold through Atlas Petroleum Co. of Chicago.

The new company is incorporated for 10,000 shares with a par value of $10. Incorporators are J. J. Taxman, I. W. Miller, and M. Blocher.

Falcon Refining Co. To Enlarge Refinery

Capacity of the Falcon Refining Co. plant at Great Bend, Kans., in Barton County, will be increased from 900 to 1,800 bbls. daily with the completion of a new cracking unit and other equipment, which is being installed at a cost of $200,000. The new unit will enable the company to make "regular" or high-octane gasoline.

Start Construction on New Anglo-Canadian Cracking Unit

Anglo-Canadian Oils, Ltd., will at once begin construction of a 500-bbl.-a-day Dubbs cracking unit at Brandon, Manitoba, near Winnipeg, where the company has a 1,200-bbl. skimming plant.

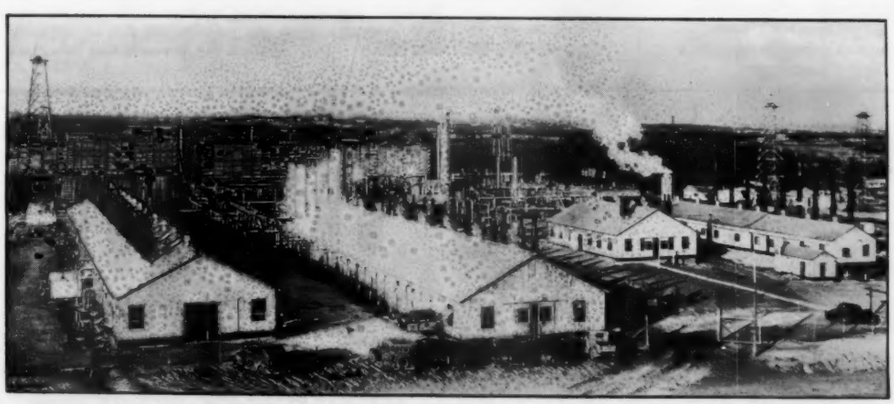
This has just been announced by R. J. Christian, general manager of the company. Mr. Christian spent several days in the offices of Universal Oil Products Co. negotiating a license agreement.

Dr. Sidney Born, professor of petroleum engineering at the University of Tulsa, is the consulting engineer. He will design the unit, subject to approval of Universal. Materials will be bought and the unit will be built by Anglo-Canadian Oils, Ltd.

The refining company is entirely Canadian owned. It is associated with Anglo-Canadian Oil Co., Ltd. of Calgary, Alberta, which owns about 31 per cent of the production of the Turner Valley field, according to Mr. Christian. The company's potential production is about 20,000 bbls. a day, but actual production, he says, is held down by proration restrictions to about 7,000 bbls.

W. S. Campbell is president of Anglo-Canadian Oils, Ltd., F. P. Byrne is vice president, and N. W. Kerr is secretary.

Natural Gasoline



Warren Petroleum Corp. and J. E. Crosbie, Inc., jointly own the Fittstown, Okla., natural gasoline plant with capacity for recovering 40,000 gallons from 35,000,000 cu. ft. of gas. Recently the gathering system of the plant has been increased by adding 18,500 feet of 20-inch pipe, which makes it possible to step up the output to 7,500 gallons more than was produced before the construction of additional lines.

Del Rey Will Build Gulf Coast Plant

The Del Rey Petroleum Co., of Tulsa and Houston, will install a $200,000 absorption natural gasoline plant with a capacity of 10,000 gallons of gasoline daily in the Hardin pool of Liberty County, eastern Gulf Coast district, Texas.

Construction activities are to begin April 1, it was learned, and the contract has been let to the Moorelane Co., of Tulsa, which has recently obtained crews to man the project and have materials and equipment moving to the location.

Casinghead gas from the field which hitherto has been dissipated will now be processed for commercial use, thus making this natural resource of Hardin available for marketing purposes. R. R. Dean, formerly of Tulsa, is president of Del Rey.

Programs and Meetings

Ark-La-Tex A.P.I. Chapter Formed at Shreveport

SHREVEPORT, La.—The Ark-La-Tex chapter of the American Petroleum Institute was organized in Shreveport, La., last week at a meeting held by operators of the tri-state area. The new chapter, which will embrace North Louisiana, South Arkansas and the east border counties of Texas, will hold its first meeting on April 5, preceded by a dinner.

The officers of the new chapter are: L. M. Moffitt, Triangle Drilling Co., chairman; Ted W. Johnson, Union Producing Co., vice chairman; and W. E. Schoeneck, Ohio Oil Co., secretary-treasurer. Appointed to the program committee were Ted Johnson, chairman; W. C. Spooner, consulting geologist; W. B. Powers, Magnolia Petroleum Co.; R. O. Garrett, Arkansas Fuel Oil Co., and P. D. Baker, Standard Oil Co. of Louisiana. The membership committee consists of C. E. Morris, Union Producing Co.; R. A. Tillery, Ohio Oil Co.; M. T. McGriff, International Derrick & Equipment Co., and John H. Grubbs, Baker Oil Tools, Inc. The publicity committee includes George Weber, Leo Martin, and R. P. Brooks.

International Acetylene Association Meeting

HOUSTON, Tex., Mar. 13.—Technical papers and discussions dealing with methods and developments in oxy-acetylene welding featured the thirty-ninth annual convention of the International Acetylene Association at Houston, March 8-10. Most of the papers directly pertained to oil industry uses for welding.

H. F. Dolisie, Montreal, Canada, president of the Canadian Liquid Air Co., Ltd., vice president of the association the past year, was elected president, succeeding Elmer H. Smith, president, Commercial Gas Co., Minneapolis, Minn. Henry Booth, president, Shawinigan Products Corp., New York, treasurer the past year, was elected vice president and treasurer. H. F. Reinhard, Union Carbide Co., New York, was reelected secretary. The retiring president was elected a director.

More than 2,000 registrations were reported. Demonstrations of welding uses were presented.

The Morehead medal awarded annually to the individual contributing most during the year toward the advancement of the oxy-acetylene welding industry was awarded John J. Crowe, New York, developer of oxy-acetylene welding apparatus. The presentation was made by C. D'W Gibson, vice president, Air Reduction Co., Inc., New York, past president of the association.

Two general sessions were held. J. H. Van Deventer, editor of Iron Age, New York, was the principal speaker Wednesday noon. His address dealt with world conditions. Others on the program included J. W. Evans, vice president, U. S. Chamber of Commerce, and chairman of the Houston Port Commission, who delivered the welcome address, and Mr. Smith, the retiring president.

Newly elected officers of International Acetylene Association. H. F. Reinhard, reelected secretary; Henry Booth, vice president and treasurer, and H. P. Dolisie, president

George A. Hill, Jr., president of Houston Oil Co., Houston, was the principal speaker at the general session Thursday noon. He pointed out the oil industry depends in a large way on the products and processes of the welding industry, and owes the latter industry a great debt.

The program included a trip through the plant of Hughes Tool Co. Technical sessions were held in groups, held simultaneously.

Electrical Engineers, Tulsa Section, Meeting

Daniel Silverman, of Stanolind Oil & Gas Co., will speak on "The Application of Electrical Engineering to the Search for Oil" before the Tulsa section, American Institute of Electrical Engineers, at the Tulsa Building, March 20, at 7:30 p.m.

Safety Program at Houston Show to Have Wide Appeal

In addition to the technical sessions to be given under the auspices of the general safety committee, a program instructive and interesting to oil men will be given in the Convention Hall of the Coliseum during the Oil-World Exposition in Houston April 24-29. The safety meetings will be open on Thursday evening, April 27 with a banquet at the Texaco Country Club for safety men. After meetings and round-table discussions next day, the program will be presented on Friday evening, April 28.

It will open with the entrance of a guard of honor of from 50 to 100 oil company employes who have saved a life by first aid or resuscitation. Captain Nixon, personnel manager, Texas Co., will speak. Governor O'Daniel's address will be broadcast.

The Safety Committee will introduce a 13-year-old high school girl of Big Spring, Tex., Mary Elizabeth Davis, who saved her 11-year-old brother by resuscitation after he had been overcome in a gas-filled ravine. Her knowledge of first aid had been secured from the safety manual of her father, an employe of Continental Oil Co. Mary Elizabeth was given the President's Medal Award of the National Safety Council, a life saving certificate of the American Red Cross and, from Continental Oil Co., a wrist watch and a copy of a resolution adopted by the board of directors. Ed Lenzner, general manager, Oil-World Exposition, advises that the safety committee will present a silver plate to her.

CALENDAR

March

AMERICAN PETROLEUM INSTITUTE, spring meeting of Southwestern District Division of Production, Plaza Hotel, San Antonio, Tex., Mar. 16-17.

AMERICAN CHEMICAL SOCIETY OKLAHOMA SECTION, petroleum group, at Tulsa, March 18.

WESTERN PETROLEUM REFINERS ASSOCIATION, annual meeting, San Antonio, Tex., Plaza Hotel, Mar. 20-22.

SOCIETY OF EXPLORATION GEOPHYSICISTS, annual meeting (joint meeting with A.A.P.G. March 22), Oklahoma City, Huckins Hotel, March 21-23.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, 24th annual meeting, Skirvin Hotel, Oklahoma City, Okla., Mar. 22-24.

April

AMERICAN CHEMICAL SOCIETY, Baltimore, Md., April 3-7.

AMERICAN PETROLEUM INSTITUTE, spring meeting of eastern district, Division of Production, William Penn Hotel, Pittsburgh, Pa., April 4-5.

AMERICAN PETROLEUM INSTITUTE, spring meeting of Pacific Coast district, Division of Production, Biltmore Hotel, Los Angeles, Calif., April 11.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Hotel Cleveland, Cleveland, Ohio, April 13-14.

OIL BURNER INSTITUTE, fifteenth annual meeting, New York, April 18.

AMERICAN PETROLEUM INSTITUTE, Division of Production, Mid-Continent district, Skirvin Hotel, Oklahoma City, Okla., April 18-19.

OIL-WORLD EXPOSITION, Houston, Tex., April 24-29.

May

PETROLEUM ELECTRICAL SUPPLY ASSOCIATION AND PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Rice Hotel, Houston, Tex., May 2-4.

NATURAL GASOLINE ASSOCIATION OF AMERICA, Hotel Tulsa, Tulsa, Okla., May 3-4-5.

AMERICAN PETROLEUM INSTITUTE, ninth midyear meeting, Roosevelt Hotel, New Orleans, La., May 15-18.

NATURAL GAS SECTION, A.G.A., annual meeting, Tulsa, May 8-11.

WORLD AUTOMOTIVE ENGINEERING CONGRESS, sponsored by S.A.E. for New York (May 22-26), Indianapolis (May 20), Detroit (May 31-June 2), San Francisco (June 6-8), May 22-June 8.

NATIONAL ASSOCIATION OF PURCHASING AGENTS, annual convention (Oil Company Buyers' Group), Fairmont Hotel, San Francisco, Calif., May 21-25.

June

ILLINOIS-INDIANA PETROLEUM ASSOCIATION, seventh annual conference, Robinson, Ill., June 3.

PENNSYLVANIA GRADE CRUDE OIL ASSOCIATION, Hotel Hershey, Hershey, Pa., June 15-16.

THIRTEENTH INTERNATIONAL CONGRESS OF CARBIDE, ACETYLENE, OXYACETYLENE WELDING AND ALLIED INDUSTRIES, Munich, Germany, June 25-July 1.

August

MICHIGAN OIL AND GAS EXPOSITION, Mount Pleasant, Mich., Aug. 1-6.

ENGINEERING and OPERATING

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Petroleum chemists are now able to utilize the hydrogen and carbon contained in crude oil to synthetically produce superior motor fuels. Catalytic research is opening the gates more widely each year so that, at present, petroleum may be economically converted into many articles of trade in addition to motor fuels and lubricants. The way is, thereby, being prepared for a greatly expanded use for petroleum in the field of pharmaceuticals, dyes, explosives, perfumes, flavoring compounds and plastics to take the place of products made normally from coal. The broad vision of the future of petroleum utilization should be of interest to the producer, refiner, marketer and consumer.

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Developments in HYDROCARBON CHEMISTRY

By Jacque C. Morrell
Research Laboratories, Universal Oil Products Co.

THE subject of hydrocarbon chemistry and technology is so extensive that the present paper must of necessity be limited to the broad present trend of the scientific and technical developments in this field.

The rapid development of hydrocarbon chemistry and technology has from one viewpoint been due to economic causes. The petroleum industry of the world, which is the principal direct source of hydrocarbons, has an investment of approximately 20 billion dollars and a production of approximately 2 billion barrels of crude oil per year, from which is produced approximately 800 million barrels of motor fuel. More than one-half of this crude oil and motor fuel is produced in the United States and used largely for the operation of its 30 million motor cars. The growth of the industry can best be evaluated by the consumption of motor fuel, which has increased approximately five-fold within the past two decades.

The increased production of motor fuel has been made necessary by the extremely rapid growth of the motor industry and the demand for motor fuel has brought about the development of the cracking process to supply additional yields of gasoline from the relatively limited supplies of crude oil. How well the cracking process has accomplished its purpose is indicated by the fact that the output of gasoline by cracking is approximately equal to that produced by distillation of the gasoline contained naturally in the crude oil (i.e., about 50 per cent of the total gasoline production from crude oil), which results in a saving of over 1 billion barrels of crude oil per year in the United States alone.

Coincident with the production of cracked gasoline resulting from the pyrolytic or thermal treatment under pressure of the higher boiling fractions of petroleum, about 300 billion cubic feet of cracked gases are made yearly. These are now being converted commercially into polymer gasoline and isooctanes. The gases from cracking contain a high percentage of olefin hydrocarbons, the conversion of which into alcohols, glycols, ethers, esters, ketones, amines, chlorinated and nitrated derivatives aldehydes, synthetic lubricants, resins, rubber and plastics generally have challenged the skill of the chemist.

Success with the relatively reactive olefin hydrocarbons has led to a study of reactions with the relatively inert paraffinic hydrocarbons, particularly by catalytic methods and the mass attack upon these problems has resulted in commercially adaptable methods which allow conversion of practically all types of hydrocarbons into any other types, depending upon which is the most desirable for the objectives and purposes sought.

Hydrocarbons in Cracked Distillates

In general it may be stated that any type of hydrocarbon can be converted into any other type by catalytic reactions already established and which are adaptable to commercial production. Thus the foundation has been laid for an improved petroleum industry and a synthetic chemical industry utilizing petroleum as a raw material for the production of explosives, dyes, pharmaceuticals, medicinals, synthetic perfumes and flavoring compounds and a myriad of synthetic products which heretofore have been known only as coal tar derivatives. Dehydrogenation, polymerization, depolymerization, alkylation, isomerization, hydrogenation, cyclization—these are some of the processes by which these products may be produced catalytically. Simultaneous with the production of products useful to mankind has been the development of a hydrocarbon chemistry which has furnished chemists with tools heretofore unknown for investigation of hydrocarbon reactions.

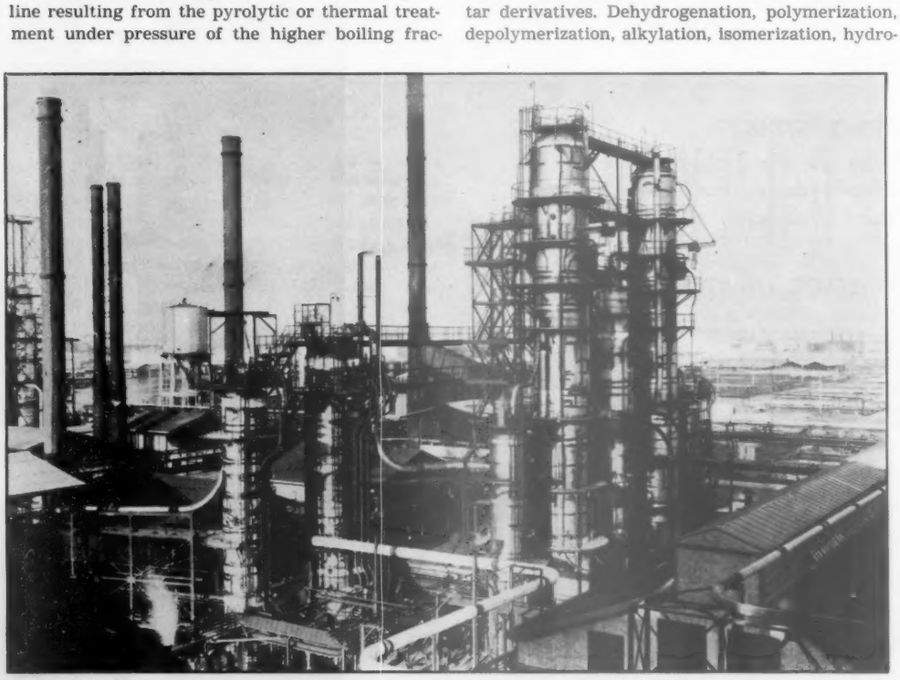
Because of its potentialities the petroleum industry has attracted more scientific and technical workers during the past decade than any other. The scope of problems involved in oil production and refining covers practically every branch of human knowledge while the scientific and economic aspects of the industry warrant the employment of increasing numbers of scientific and technical workers.

During the past decade interest in hydrocarbon research has been greatly stimulated in universities and in our National Bureau of Standards by financial grants *(to A.P.I. by John D. Rockefeller and Universal Oil Products Co.)* for fundamental research. The projects under these grants initiated a definite and widespread interest in hydrocarbon research which has continued because of the large economic possibilities and intrinsic scientific values to be found in hydrocarbon chemistry and in the petroleum industry.

The entire field of hydrocarbon power fuels, in which may be included petroleum, natural gas and coal, is encompassed by the reactions of hydrocarbons. The interchangeability and substitution of one natural hydrocarbon resource by the other guarantees a continuing supply of motor fuel and hydrocarbon derivatives and provides the stimulus for the development of new fields in hydrocarbon chemistry. Petroleum resources for the production of hydrocarbons and their derivatives may be supplemented by approximately 75 trillion cu. ft. of natural gas and 7,400 billion tons of coal. These materials may be converted into hydrocarbons of any desired type or even any desired individual hydrocarbon by reactions already established as will be evident from the type reactions discussed in this work.

Absorption Spectra

Recently there have been important developments in the determination of individual hydrocarbons by absorption spectra. Carr and Stücklen[8] examined the ultraviolet absorption of 26 unsaturated hydrocarbons, including olefins and diolefins, using a fluorite vacuum spectograph. They found that the light absorbed by a hydrocarbon molecule was determined by the number of hydrogen atoms directly bound to the carbon atoms of double bond and was independent of the size



Two-coil, selective cracking unit, with continuous coking and reforming

or arrangement of the alkyl group. They concluded also that the ultraviolet absorption spectra can be used to determine the structure of pure hydrocarbons and to give evidence as to energy relationships of carbon-carbon bonds.

Rosenbaum, Grosse and Jacobson[6] determined the Raman spectra of nine isomeric heptanes. They concluded that each spectra has characteristic features permitting reliable semiquantitative analysis of mixtures. Earlier work with hexanes checked with chemical methods.

Rose[7] determined the infra red absorption of a large number of hydrocarbons and concluded that "It appears that these data can now be correlated quantitatively with respect to structural units of hydrocarbon molecules."

The use of absorption spectra for the determination of individual hydrocarbons is analogous in effect to the use of fingerprint methods, each hydrocarbon having its own characteristic absorption band.

Determination of Individual Hydrocarbons

The complexity of hydrocarbon chemistry may be simply illustrated by the following table showing the possible number of isomers corresponding to each individual hydrocarbon:

POSSIBLE ISOMERS

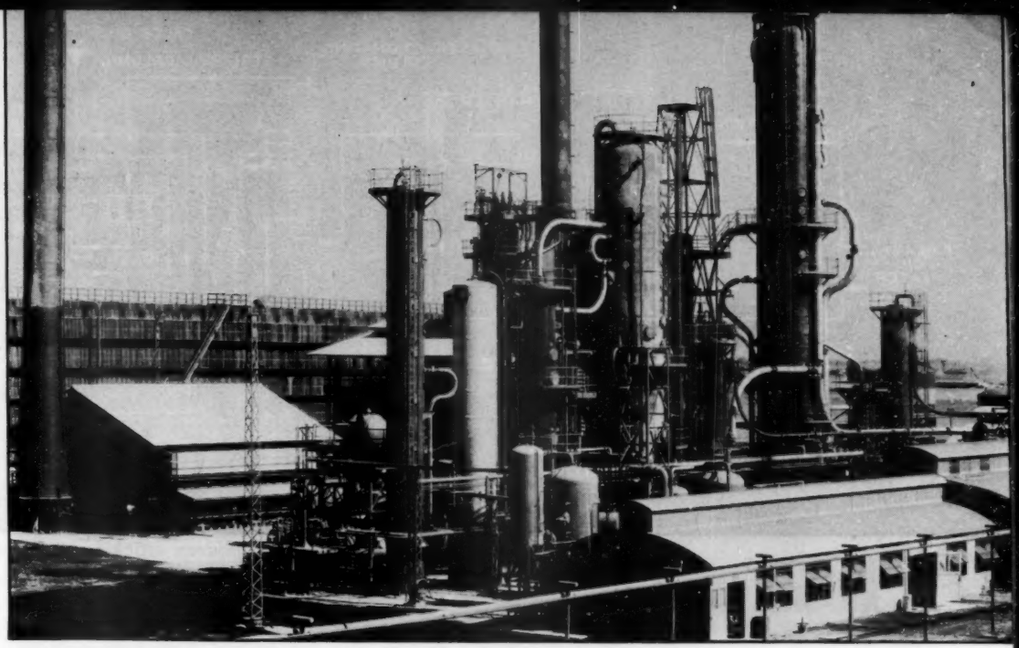
Number of carbon atoms in the molecule	No. of isomers aliphatics C_nH_{2n+2}
6	5
7	9
8	18
9	35
10	75
11	159
12	355
13	802
14	1,858
15	4,347
16	10,359
17	24,894
18	60,523
19	147,284
20	366,319
25	36,797,588
30	4,111,846,763
40	62,491,178,805,831

Rossini[1] and co-workers determined the chemical constitution of the fractions of Mid-Continent gasoline boiling below 180° C. They identified and isolated 45 hydrocarbons, including paraffinic, aromatic and naphthenic hydrocarbons. Fractional distillation was employed and included pressures from 0.001 mm. of mercury to atmospheric. Constant boiling mixtures were made by the addition of other substances. Crystallization was also employed both by simple refrigeration and with suitable solvents.

As extensive and painstaking as the work has been, it represents only a beginning in the determination of individual hydrocarbons in petroleum. Regarding the previous work, Fenske, Quiggle and Tongberg,[3] using a 52-foot column, isolated about 20 compounds. Brown and Carr,[5] using an 18-foot column, separated cyclopentane, cyclohexane, benzol, toluene, pentanes, hexane, heptanes, octanes, and nonane from commercial straightrun gasoline. Anderson and Erskine[4] analyzed natural gasoline, and separated pentanes, hexane and heptanes. Earlier workers employed simple stills or modifications thereof for their fractionation; hence their work was not so reliable.

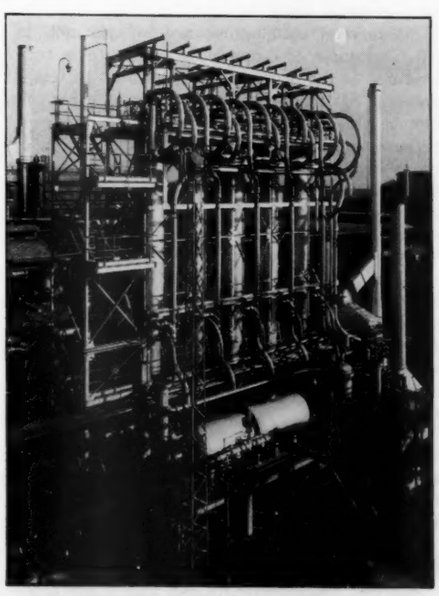
Methods of Hydrocarbon Gas Analysis

The enormous resources of hydrocarbon gases, both artificially and naturally produced, make this subject important. Carbon dioxide, carbon monoxide, hydrogen sulfide, mercaptans, oxygen, hydrogen, acetylene, alkadienes, methane, ethane, ethylene, propane, propene. butanes, and butenes may all be determined by a combination of absorption and chemical methods. Low temperature fractional distillation employing liquid nitrogen as a condensing agent and plotting curves so that a series of plateaus is obtained corresponding to individual hydrocarbons is the most widely used.



Modern cracking plant

Practically all of the work on the chemical composition of cracked distillates has been directed to hydrocarbon group analysis rather than individual compounds. Four groups of hydrocarbons are of principal interest, namely: unsaturated, aromatic, naphthenic and paraffinic hydrocarbons. Olefin determination: Various methods are employed, such as halogenation, reaction with mercury salts, heat of reaction, various solvents, all of which have objections. Sulfuric acid is the most widely used reagent. It reacts to give alcohols, esters, polymers, oxidation products and saturated HCs, the extent depending upon molecular weight and structure of olefin and concentration of acid. In general, determination of olefins is made with various strengths of sulfuric acid, in some cases containing boric acid to reduce the reaction with aromatic hydrocarbons and in some methods employing sulfur mono-chloride to remove olefins from mixtures. Aromatics are generally determined by nitration; combined olefins and aromatics by reaction with sulfuric acid. Naphthenes are determined by the lowering of the critical solution temperature of aniline, nitrobenzene, and similar solvents. Paraffin hydrocarbons are determined by difference. Diolefins, such as butadiene, isoprene and cyclo-pentadiene have been determined in highly cracked gasolines by employing maleic hydride.



Nonselective catalytic polymerization plant

There are several widely used methods for the group determination of hydrocarbons in cracked gasolines which employ one or several of the above reactions with special modifications to meet special requirements.[8 9 10]

In addition to hydrocarbons of various groups, petroleums contain compounds of sulfur, oxygen and nitrogen which are also found in the distillates resulting from the cracking of petroleum and its fractions. The presence of sulfur and its compounds is undesirable because of odor and corrosion, but a detailed discussion of them is beyond the scope of this paper.

From the foregoing it is evident that while considerable work has been done on the composition of petroleum distillates generally and cracked distillates specifically in respect of the hydrocarbon groups contained herein, namely the paraffins, naphthenes, olefins, and aromatics, our knowledge of the individual compounds in cracked distillates is meager. The methods applied to the analysis of the lower boiling fractions of crude oils, such as fractionation, would hardly suffice for their determination in cracked gasolines, but would have to be supplemented by chemical methods for the separation and identification of the individual hydrocarbons by the preparation of chemical derivatives.

Chemical Changes of Hydrocarbon Mixtures (Cracked Gasoline) in Storage

Hydrocarbon compounds containing sulfur, oxygen and nitrogen, occur in petroleums and distillates therefrom. A study of these is important in petroleum refining and is a special field in itself. The changes which take place in the storage of hydrocarbon mixtures, such as cracked distillates, are a particularly interesting part of the refining field for scientific investigation because of the deleterious effects in the use of these hydrocarbons as motor fuels in the formation of gum, reduction of antiknock properties, etc. Generally an inhibitor or antioxidant is employed to prevent these undesirable changes. These studies are of particular importance because of their application to other fields when oxidation occurs, such as rubber, paints, foodstuffs, etc.

The large amount of work done in this field is in agreement that peroxides, owing to atmospheric oxidation, are the first products, following which are formed alcohols, aldehydes, acids and the so-called gum, which also contains these same types of compounds. The diolefins are main-

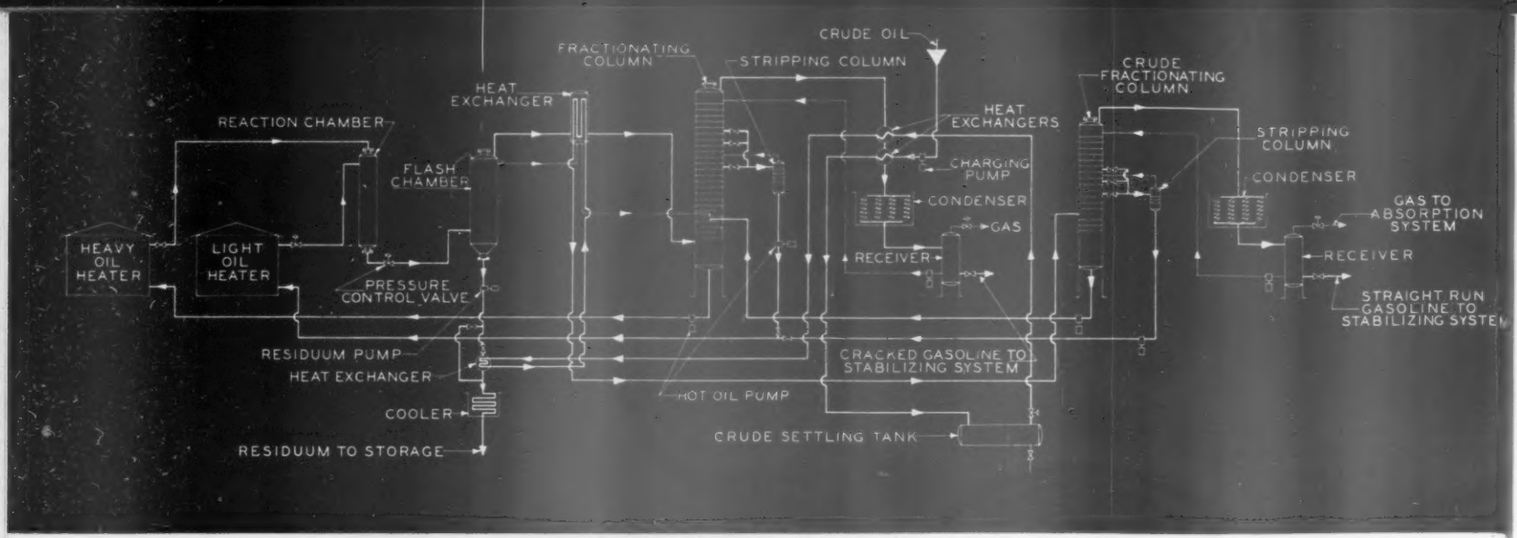


Fig. 1—Flow chart of modern cracking process

ly responsible for peroxide formation. Inhibitors lower the rate of formation of these compounds. These factors were studied quantitatively by Morrell, Lowry, Dryer and Egloff,[11] who also found that no relationship is apparent between the total unsaturated content of the gasolines and their tendency to oxidize as measured by the oxygen bomb induction period, but this is apparently more dependent upon the type of unsaturates than on their amount.

A study of pure hydrocarbons showed that paraffin hydrocarbons were greatly resistant to oxidation; likewise naphthenes and aromatics. Olefins oxidize rapidly and diolefins most rapidly. In a further study by these same authors[12] of the rate of formation of some oxidation products of hydrocarbons, namely peroxides, aldehydes, acids and so-called gum, peroxides formed first and at the greatest rate. Aldehydes appear later and form more slowly, acids still later, and the concentration still more slowly. Gums appear to follow the peroxide formation, i.e., the curves for the rate of formation are about the same shape and slope.

They[12] also found that the gum formed by evaporation of oxidized gasoline is high in peroxides, aldehydes, and acids. Evaporation of gasoline in copper dishes shows a much faster formation of peroxides, aldehydes, and acids than in glass dishes. Evaporation to dryness in copper dish completely decomposes peroxides, leaving the gum high in aldehydes and acids. Other effects in the chemical changes which occur during storage in gasoline are influenced by inhibitors on the one hand and by light on the other. A great deal of work has been done on these subjects but the details of this work would carry us far afield from the present objective.

Reactions of Hydrocarbons

The particular reactions of hydrocarbons which have been selected as typical for purposes of this work illustrate present trends and more particularly show the fundamental reactions whereby groups of individual hydrocarbons occurring in large quantities may be converted into other hydrocarbons which are more reactive and more desirable because of the products and derivatives which can be made therefrom.

Generally the preponderant supply of lighter hydrocarbons in petroleum, natural gas, etc., are paraffinic in character and for both motor fuel use and the production of chemical derivatives it is desirable to convert them into more reactive types, viz., olefins and aromatics. Some of these general types of reactions will be discussed below.

Pyrolysis of Gaseous Hydrocarbons

Processes involving the cracking of normally gaseous hydrocarbons have received impetus from the fact that they are available in enormous quantities and that by this simple method of pyrolytic treatment compounds of greater activity and increased value are obtained. Thus from methane, which is the chief constituent of natural gases, it is possible to produce acetylene and ethylene. Ethane may be made to produce large quantities of ethylene and by properly controlling and limiting the time of exposure to pyrolytic conditions. propane and butanes may be made to yield substantial quantities of the corresponding quantities of propenes and butenes which have a high reactivity and many practical uses.

Methane, the chief constituent of natural gas, produces only fair yields of acetylene and ethylene by pyrolysis at 1,120° C. and contact time of 0.1 seconds.[14] Ethane begins decomposition in the absence of catalyst at about 485° C., producing principally ethylene and hydrogen over a range of several hundred degrees beyond this. At higher temperatures methane, acetylene, and aromatic hydrocarbons are also formed.[15]

The principal products from propane at 650° C. are propene and hydrogen. Other products are methane, ethane, acetylene and butanes. At 725° C. the yield of propene decreases, and that of ethylene increases.[16]

Butanes correspond, as in the case of other hydrocarbons, to simple primary dehydrogenation reactions at 1,000-1,100° F. and 700-1,000 pounds per square inch pressure, producing about 40 per cent butenes. Higher temperatures give lower yields of butenes. The pyrolysis of butanes to form butenes is important in the production of polymer motor fuels.

Commercial installations are in operation in which mixtures of butanes are pyrolyzed at temperatures of the order of 1,000 to 1,100° F. under pressures of 700-1,000 pounds per square inch to produce yields of butenes as high as 40 per cent of the original charge. More extensive decompositions involve the splitting of both the terminal and middle C-C bonds to form respectively methyl, propyl, and ethyl radicals which may enter into further reactions with the unchanged butanes. The pyrolysis of butanes under conditions conducive to the formation of relatively high yields of butenes is important in the production of aviation fuels consisting of mixtures of octanes of high antiknock rating since the butenes may be catalytically polymerized to octene dimers and then hydrogenated to produce the mixtures of octanes.

Tropsch[17] discloses a process for the production of ethylene from higher hydrocarbons, with temperatures of 1,050-1,150° F. subject to atmospheric pressure and times less than 0.1 seconds, yielding 40 per cent ethylene.

Wulff[18] discloses a process for the production of acetylene by pyrolysis of other hydrocarbons.

Morrell[19] produces acetylene and other products, including high octane gasoline, by pyrolysis of higher molecular weight gases under conditions to produce high yields of ethylene, polymerization or alkylation of higher olefins by catalysis to produce motor fuel; pyrolysis of residual gases containing high percentages of ethylene at temperatures of above 1,100° C. at subatmospheric pressures, with a time factor of 0.1 seconds to produce high yields of acetylene.

These processes may be illustrated by the data taken from the patents and the work of Tropsch and Morrell (loc. cit.):

The analysis of the gas cracked, which was produced as a by-product in an oil cracking process, is given below:

	Volume per cent
Acetylene	0.4
Ethylene	4.6
Propylene	5.4
i-butene	2.9
1.3 butadiene	4.3
Methane	26.6
Ethane	21.1
Propane	16.3
n-butane	1.5
i-butane	0.8
n-pentane	1.9
i-pentane	1.7
Hydrogen	5.8
Carbon monoxide	0.5
Carbon dioxide	1.5
Nitrogen	4.7
	100.0

Table 1 embodies the principal data obtained in a series of test runs in which temperature and contact times were progressively varied over a limited range while processing the above gas.

TABLE 1—RESULTS WHEN TREATING CRACKED GAS

Temperature °C.	Contact time in sec. at max. yield	Max. liters of hydrocarbons from 100 liters of orig. gas		
		Propylene	Ethylene	Acetylene
1,000	0.0090	10.9	29.5	
1,100	0.0075	7.4	41.0	7.0
1,200	0.0065	2.8	31.5	14.9
1,300	0.0058	2.4	24.8	25.2
1,400	0.0050	0.96	15.0	42.0

Olefins and Diolefins from Hydrocarbon Oils

High yields of ethylene and other olefins from the pyrolysis of oils have been shown by many workers. Tropsch, Thomas, Egloff and Morrell[20] have shown the production of high yields of olefins (49 per cent), and conjugated dienes (8.5 per cent), from gas oil at a temperature of 950° C., 175 mm. pressure and 0.05 seconds contact time.[20] Pyrolysis of liquid hydrocarbons is one method by which the conjugated dienes may be produced, as shown above. Butadiene, isoprene and similar diolefins may be made also with good yields by the catalytic dehydrogenation of the corresponding olefins and paraffins.

Dehydrogenation of Gaseous Paraffin Hydrocarbons

Grosse and Ipatieff presented a paper at the Milwaukee meeting of the American Chemical Society, September 5-9, 1938, in which they described a catalytic dehydrogenation process for the con-

(Continued on Page 55)

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Flowline-Thermosyphon Type System Treating Plant Design

By T. H. HERMAN, JR.
Tretolite Company

There are many factors that enter into the designing of proper treating equipment for chemical dehydration plants such as quantity of production, physical characteristics of the oil and water, topography of the lease, climatic conditions of the locale, and many others. However, the purpose of this paper is only to discuss the design, physical layout, and theory of one type of treating plant; namely, the "flowline-thermosyphon type" system. Certain physical characteristics of the oil and water are taken into consideration in this design to obtain the proper balance on the plant but, generally speaking, all other factors are left in the background.

The name "Flowline-Thermosyphon Type" is applied to this system because it is a combination of two types of treating plants. First, the "flowline" system in which the emulsified oil with Tretolite already proportioned into it, is produced through a line heater and into a wash settling tank (called treating tank in this paper) through a flume column. Second, the "thermosyphon" system in which the water in the treating tank is kept warm by a thermosyphon coil or log connected independently to the tank and the emulsified oil with the Tretolite already proportioned into it, is brought into the treating tank at atmospheric temperature through a flume column. Either of these systems independently have their advantages and disadvantages which will be discussed briefly below so as to lead to a better understanding of the combination plant.

Flowline Type System

Figure 1 is a diagrammatic layout of the average "flow-line" type system. In this system only the emulsified oil is heated directly in the line heater. Sufficient heat must be applied to this stream not only to raise the emulsified oil to the proper temperature but also enough more to make up for radiation losses in the system. A so-called "safety line" is connected from the bottom of the treating tank back to the heater, connected into the oil line at heater inlet, necessary check valves are installed. The purpose of this line is supposed to be to keep the heater full of water but in no case is its action positive, as back pressure at the heater, due to flume column head and oil line pressure, is sufficient to make its action uncertain. Also, in many cases it is claimed that this safety line affords a thermosyphon circulation, but this is erroneous as it is physically impossible ever to return water in a *thermosyphon* circulation at any point above the actual water level in the treating tank. The high up flume inlet at "*A*" automatically breaks any thermosyphon circulation. However, some circulation on this type system can be had by heating the water in the heater to the boiling point and causing it to percolate into the flume. But this practice causes salting up of the heating equipment and frequent heater burnouts.

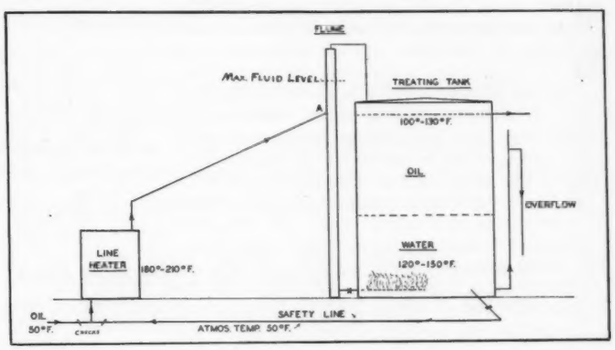

Fig. 1—Flow-line type system

To sum up the "flow-line type" system, the advantage of it is that the emulsified oil stream receives an initial heat before it reaches the treating tank and therefore the "break" stage of the emulsion is advanced to where the treating tank serves the purpose of water wash and settling tank. Gases liberated by the application of heat are separated in the flume; the settling layer in the tank is fairly quiet. The disadvantages of this system are: first, poor heat balance between heater and treating tank; second, frequent salting up of heating equipment; third, frequent heater burnouts involving high maintenance costs and a definite fire hazard.

The accompanying temperature figures on Figure 1 indicate the approximate heat balance that is usually obtained with this type system, assuming oil and water gravities, through-put, outside temperature, radiation losses, heater size, and tank size to be equivalent in all comparative drawings shown in this paper.

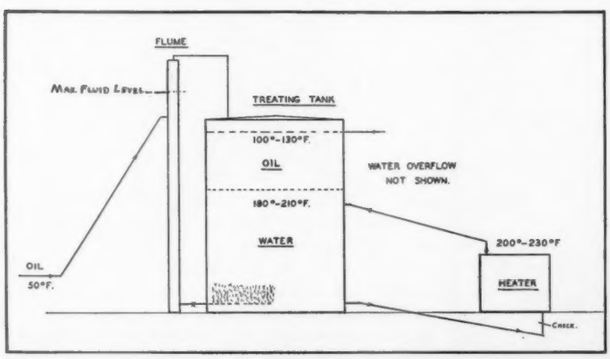

Fig. 2—Thermosyphon-type system

Figure 2 is a diagrammatic layout of the average "thermosyphon type" system. In this system only the water in the treating tank is heated directly through the heater by a thermosyphon circulation and the emulsified oil stream picks up its heat by a water wash within the treating tank. Therefore, water in the treating tank must be sufficiently hot to transfer heat to the cold oil stream and yet be ready to take care of new fluid coming in. For this reason the treating tank water is always maintained at a relatively high temperature and that means that the thermosyphon heater must be maintained at a high temperature. These excessive temperatures cause frequent heater burn-outs and a high degree of corrosion in both the heater and the treating tank.

Also, the cold oil stream hitting the hot water causes the liberation of gases from the oil, which bubble through the oil layer in the treating tank and disturb the settling stage. Along with the convection currents set up in the treating tank due to the excessively hot water on the bottom, the settling efficiency of the treating tank is cut to a low degree.

Thermosyphon Type System

Another point is that the "break" stage of an emulsion often cannot take place until after the application of heat. Since the heat is applied by the water wash itself, the break stage must take place, in these cases, in the oil layer of the treating tank. Because of the poor settling efficiency in this type system and the delayed "break," oil containing a percentage of b.s. and water much above the required limitation, is carried out of the treating tank gravity line.

To sum up the "thermosyphon type" system, the only advantage of it is, that even though the temperature is high, there is a reasonably good heat balance between the heater and the treating tank water especially when the rate of flow of incoming oil is not too rapid. The disadvantages of this system are: first, delayed "break" of the emulsions; second, low settling efficiency; third, agitation within the treating tank; fourth, frequent heater burn-outs; fifth, high degree of corrosion.

The accompanying temperature figures on Figure 2 indicate the approximate heat balance that is usually obtained with this type system, all conditions being equal to those of Figure 1. Note that for the same temperature of top oil in the treating tank, the temperature of the water layer in the two cases varies widely.

By combining the two types of plants mentioned above, the result is a system that offers

the advantages of an initial heat on the emulsified oil stream which promotes an earlier break, vapor separation in the flume column, and a quiet settling layer, along with advantages of an ideal heat balance between the heater and the treating tank. To offer simplicity and economy in installation, a common heater is used on the "combination" plant but the flume column is designed to accommodate both principles. And to assure proper operation in all installations, flume design is followed so as to consider the specific gravities of both the oil and water and thereby get the assurance of proper functioning of this column.

FIG. 3—RECOMMENDED MINIMUM UNIT SIZES FOR VARIOUS SIZES OF TANKS

(All actual dimensions as shown on drawing are standard for all sized tanks)

	Size of treating tank							
	15 ft.	16 ft.	20 ft.	24 ft.	16 ft.	24 ft.	16 ft.	24 ft.
Units (as indicated on drawing)—	210	200	200	300	500	750	1,000	1,500
DF—diameter of flume (in.)	8	8	8	10	12	15	18	*18
HL—heater-flume line (in.)	3	3	3	4	4	4	6	6
RL—water return line (in.)	2	2	2	3	3	3	4	4
TL—flume to tank inlet (in.)	4	4	4	4	6	6	8	8
WL—water overflow (in.)	2	2	2	2	3	3	4	4
EL—flume vapor line (in.)	2	2	2	2	2	3	3	4
VL—tank vent line (in.)	2	2	2	3	3	4	4	4
GL—oil gravity line (in)	2	2	2	3	4	4	2-4	2-4
W—length of section (ft.)	6	6	6	6	8	8	12	12
F—height of flume =	$C' + 9\frac{WG}{OG} + 6$ ft.							
S—height of overflow T =	$C'\frac{OG}{WG} + 9$ ft.							
Heater†	Boiler, log, or coil type. Size of heater will depend upon quantity of production, desired heating range, and heat losses.							

WG = sp. gr. of water at tank temperature
OG = sp. gr. of oil at tank temperature

*Dual heater, flume, and other units may be necessary on large production.
†Heaters affording a high degree of line friction are not recommended for this type plant. Temperature controller should be used.
Notes.—Flume can be installed on inside of tank. In this case, flange 2-inch connection through tank wall and into flume and cut 1 inch a foot above water level. Complete system should be insulated for heat conservation and better circulation.

Design of the System

In the actual design of the "flowline-thermosyphon" type system, first a treating tank of the desired size is chosen. So many factors actually control the proper size of the treating tank that a discussion of that phase will not be attempted in this paper. However, to facilitate the physical layout of the system, a chart is given in Figure 3 that will prove of material aid in installing the proper size lines and fittings for various sized tanks. All symbols, as shown on the chart, are indicated the same on the complete design of a "flowline-thermosyphon type" as shown in Figure 4. It should be particularly noted that all actual dimensions that are shown in Figure 4 are standard for all sized tanks.

The treating tank is then equipped with the proper sized flange connections for the oil gravity overflow, the automatic water overflow, the water return line, the flume to tank oil inlet, a 1-inch flange 10 feet off bottom on the flume side, and the necessary vapor and vent connections in the top deck. The flume column should be set on the opposite side of the tank from the water return connection and the water overflow. *Note: Do not use the same common flange connection in the tank for both the return line and the water overflow.*

The tank is then equipped with the flume oil inlet and the spreader section as indicated on the drawing, Section *A-A*. Perforated steel walkway sections have been found to be adequate for a spreader and at the same time economical to install. Note that this walkway section is turned at right angles to the inlet. The purpose of this is to keep any incoming fluid from reaching across to the water connections. Also it is meant to keep the oil stream contacting the oil-water interface in the tank on the flume side half of the tank so that the travel in the oil layer for settling will be diagonal from that point to the oil overflow. This aids in increasing the oil travel and settling, and also cuts down channeling and dead spots in the oil layer.

In this new design, the water level in the treating tank is pegged at 9 feet for all sized tanks. This level is chosen because it is adequate, in most cases, to accommodate most types of heaters in the proper set-up and yet not excessive enough to limit the amount of oil layer in the treating tank to an inadequate layer for reasonable settling. The purpose of the water wash in a treating tank is to cause the coalescense of minute water particles ruptured from the emulsion by washing in a continuous water phase but it has been found that a wash of a few feet is just as effective as one of several times that travel.

The height of the overflow "tee" on the automatic water overflow is calculated on a hydrostatic balance of the fluids. Calling the height of the "tee" as "*S*," and the depth of the oil layer in the tank as "*C*," we have

$$S = C \text{ ft.} \frac{OG}{WG} + 9 \text{ ft.}$$

where

OG = specific gravity of the oil at tank temperature

WG = specific gravity of the water at tank temperature

The flume column diameter is chosen from the chart and the height of this column, called *F*, is calculated from the specific gravities of the two fluids so that the height is always adequate to take care of the specific case.

$$F = C \text{ ft.} + 9\frac{WG}{OG} + 6 \text{ ft.}$$

The 6 feet is allowed to take care of surging and to permit adequate vapor separation in the flume. Insufficient flume height causes the short circuiting of partially treated oil to the fluid surface in the treating tank and this pollutes the overflow stream from the tank. Baffles in the top of the flume are recommended to cut down as much spray through the vapor line as possible.

Connection Details

Two inlet connections are provided on the flume. The upper one, termed the "flow connection," ties in 5 feet from the top, which is 1 foot above the theoretical maximum fluid level of the flume. This line should be of the size indicated on chart. The lower connection, termed the "thermosyphon connection," ties in 6 feet 3 inches from the bottom or tank floor level. This lower connection is always a 2-inch. Note the manner in which the junction of these two inlets is made and also that it is 1 foot lower than the water level in the tank. *This procedure is definitely recommended as it has been found that "running" or "bull head" connections at this junction are very unsatisfactory as they cause severe agitation in the flume.*

A 1-inch connection is provided in the side of the flume 18 inches below the fluid level of the tank. This is connected downward and into the 1-inch flange in the side of the tank 10 feet off bottom. *This connection is absolutely necessary as it provides for the thermosyphon circulation.* Its purpose is to cause a complete equalization, when oil is not flowing, between the tank and the flume, not only in hydrostatic head but also in the oil-water interface of the two units. When the oil stream is flowing, it is true that a small stream of oil is always flowing through the 1-inch line, but this stream still gets the required settling even though it lacks the water wash in the treating tank. A three-way valve set-up on this 1-inch line permits sampling from either the flume or the tank and also permits blowing off in case the line has become clogged.

From the junction point of the two flume inlets back to the heater outlet, the line should be elevated and have a drop of at least 2 feet. In no case should this line be returned along the ground level. On the water return line, it is recommended that this line also be downhill from

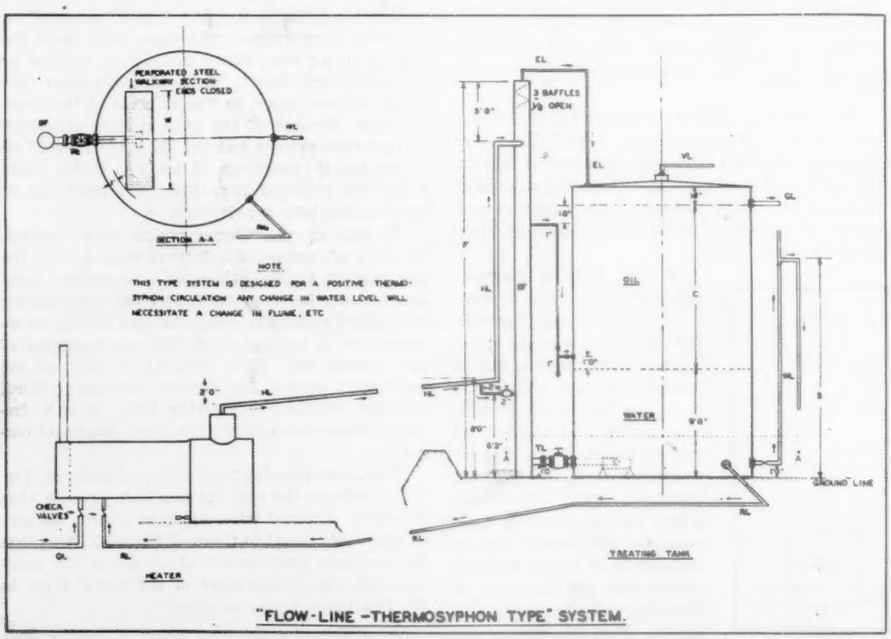
PERFORATED STEEL WALKWAY SECTION ENDS CLOSED
SECTION A-A
NOTE
THIS TYPE SYSTEM IS DESIGNED FOR A POSITIVE THERMO-SYPHON CIRCULATION ANY CHANGE IN WATER LEVEL WILL NECESSITATE A CHANGE IN FLUME, ETC
3 BAFFLES 1/2 OPEN
OIL
WATER
GROUND LINE
CHECK VALVES
HEATER
TREATING TANK
"FLOW-LINE -THERMOSYPHON TYPE" SYSTEM.

Fig. 4—Improved treating equipment adapted to requirements

BAILS MUST BE GOOD

Bails do not cost a great deal to buy. But they can cost a fortune if they let go. Care in selecting the steel from which they are made is the essential ounce of prevention.

Chrome-Molybdenum (SAE 4140) steel makes bails that will stand the worst sort of service for a long time. The steel has not only the requisite strength, but good yield point and good ductility as well. Heavy loads can be applied instantaneously without fear of failure. Also, there's ample hardness to prevent premature weakening because of rapid wear.

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the tank to the heater. In level country this can be accomplished by placing the tank connection several feet off bottom.

On the question of heaters, there are so many factors that enter into this that the subject will not be attempted in this paper. However, there are two basic prerequisites for heaters to be used in this type of plant, even though the first one is important in any type of system. First, the heater should be of sufficient size and of proper design to permit the heat transfer of enough heat to raise the total throughput through the desired temperature range plus radiation losses. Second, the pressure drop through the heater should be low.

The boiler-type heater, modified for treating service, best meets the above requirements. This type of heater is indicated in Figure 4. However, the log or coil types can be used, but in the latter case the coils should be of at least 4-inch pipe. In no case are heaters recommended that afford a high degree of line friction as they cut down the thermosyphon circulation and offer the chance of re-emulsification of the oil.

The oil and the water return inlets at the heater should be made as separate connections and swing type check valves installed on each as close as possible to the heater. Automatic temperature controller is recommended and is best used by placing the bulb at the heater outlet directly in the flow stream. The heater, lines, flume, and treating tank should be insulated for heat conservation and a better circulation.

As an optional design, the flume can be installed on the inside of the tank. In this case, the 2-inch lower flume inlet must be flanged through the tank wall and connected into the flume at the required height. The 1-inch drain pipe connection is made in the flume, but the pipe is extended downward through the oil and cut off 1 foot above the water level in the tank. Inside flumes have one advantage in that they require no insulating. At the same time they are more difficult to install and are usually subjected to breakage caused by vibration set-up when heavy flows hit the flume.

Operation of the Plant

In the operation of a "flowline-thermosyphon type" system, it will be found that the plant is flexible in that it can be run as an individual flowline type system if so desired. To do this, the 2-inch valve on the lower flume inlet is closed. Also the valve on the 1-inch drain off line. This breaks the thermosyphon circulation and causes the system to operate similar to that shown in Figure 1.

Then too by installing a by-pass line around the heater on the emulsified oil stream, and slightly modifying the flume so as to have a valve part way up on the upper flume inlet line, the system can be operated as a thermosyphon type plant similar to that shown in Figure 2. In this case, both the 2-inch and the 1-inch lines must be open.

Raising or lowering the water level in this type system is not recommended, as any change in this level will break the thermosyphon circulation. This is only serious in that it will cause the system to operate similar to that of Figure 1. Changing the water level from time to time has no advantages, but instead often causes poor treating results because other treating factors are not changed along with it to absorb the variations in settling time.

The heat balance on the "flowline thermosyphon type" system is ideal and as a comparison to Figures 1 and 2, the approximate heat balance that is usually obtained is as follows:

Temperature of oil on surface of treating tank	100°-130° F.
Average temperature of water in treating tank	120°-150° F.
Temperature at heater	140°-160° F.
Temperature of water return line	100°-130° F.

Note: The temperature of the water return line as compared to that of Figure 1 and also the lower heater temperature as compared to both Figures 1 and 2. The large reduction in heater temperature is a big factor towards eliminating corrosion and salting up of the equipment and on some installations already in, heater life has been increased 600 per cent with the "flowline-thermosyphon type" plant. (All comparable temperature recordings as indicated above and also in Figures 1 and 2 are not plant results directly but are based on actual comparisons of operating plants.)

Safety Feature

An outstanding feature of this new plant is its safety factor. With the upper flume inlet fixed at a point above the maximum theoretical fluid level in the flume, and the lower 2-inch inlet designed as it is in conjunction with the 1-inch fluid equalizing line, any breakage at the heater causes immediate equalization at the flume and only water can drain back initially. Approximately a foot and a half of water must drain from the tank before any oil can go back at all. This would allow sufficient time to close the flume to tank inlet valve. This feature is a decided safety factor towards preventing complete destruction of the treating tank and the tank battery in case a fire should occur at the heater.

Advantages

It is apparent that the advantages of this new type plant are many. To sum up from this paper, the important ones can be listed as follows. First, a design of plant that is fitted to the specific case, eliminating the guesswork of inadequate equipment that may, and then again may not, fit the job. Second, an ideal heat balance on the system, giving a high heating efficiency and uniformity of control. Third, reduction of corrosion and salting up of equipment, thereby prolonging the life and cutting down the maintenance costs. Fourth, a pegging of the water level in the treating tank at a constant level that assures good settling efficiency and a good circulation. Fifth, incorporation of the treating factors that give the highest treating efficiency. Sixth, reduction in evaporation losses due to a general reduction of heat. It is recommended that the treating tank be vapor tight. Seventh, a high safety factor in preventing destruction by fire.

The "flowline-thermosyphon type" system can be used in all crude oil emulsion treating problems. Additional equipment can be added to the basic plant and the system made to fit most any treating job.

SAFETY — Guard on Backside Pumping Pendulum

Protection of workmen is not the only problem facing the oil industry as many leases require special safeguards to protect visitors and children

In fields where backside pumping is used, the pendulum attracts considerable attention, particularly when they are located along a well traveled highway. One oil company installed protective guards as soon as the machinery was ready for operation.

A box frame was made from 1-inch angle irons and the sides covered with mesh screen; this prevents anyone getting in the way of the pendulum and being hit on the downstroke. The fine screen discourages children from putting their hands or sticks into the path of the beam.

The screen guard is bolted to the frame with four bolts and is light enough for one man to remove or install and is heavy enough to protect workmen and visitors.

OPERATING IDEAS

Extension Valve Handles

Stretching some 7 feet above valves controlling flow through lines in a river bottom lease in the East Texas field, handles are attached to the regular valve wheels. Since the land in the bottom is low and poorly drained, it is normally swampy, and easily inundated even during periods of slight floods in the river. As a result, during dry weather the switcher frequently makes his rounds on horseback, at which time the extension handles reach to a height where manipulation is easy from the saddle. When floods render a boat necessary, the extension handles protrude through the water and simplify switching. Welded tee and eyelets provide support for the extensions and relieve valve hand wheels of strain.

Welded Cage Encloses Pumping Engine

Safeguarding its power units against possible pilfering, and at the same time enclosing the unit against the inquisitive schoolboy, one East Texas producing company houses a gas engine in an all-welded cage which defies molestation. The corners are made of 2-inch pipe, set in concrete, carrying a plate, to which are bolted timbers supporting the corrugated iron roof. Nuts on the bolts securing the timbers to the plate are welded to prevent removing the roof. The open sides of the cage are made of salvaged sucker-rod, welded at 6-inch intervals on three sides, with a gap through which the V-belts driving the reduction gear operate. One rod is carried across the gap, thus effectively locking the belts against removal. To replace a belt, it is necessary for the company welder to cut this bar, welding it again in place after the replacement has been effected. One side of the cage is built up separately, carried on pin hinges welded to one corner post, and secured with a padlock at the other side. The frame carrying this section is reinforced to prevent its being pried out at top or bottom.

Skids on Tank Side

Tanks used for water and fuel storage on drilling rigs are frequently damaged while loading and unloading. In the Zenith, Kansas, field, contractors are equipping their tanks with skids fastened to side by straps.

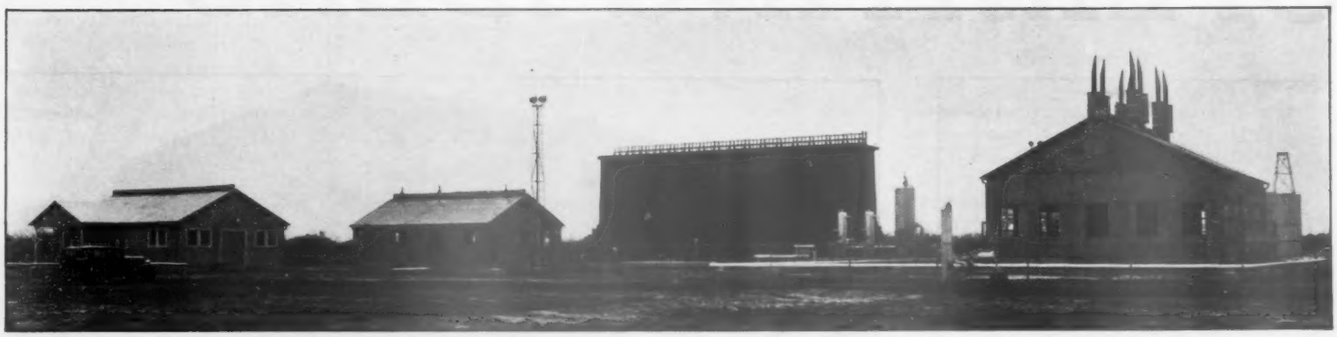
Detachable Chain Oiler

Most chain oilers are attached to the chain guard, where they are frequently damaged

during moving or while making a trip. This oiler is made from a short piece of 4-inch pipe; it has a handle and a flat base. When lifted off the chain guard it can be easily set out of the way. No oil bucket is necessary, as the oiler can be taken to the supply drum.

Red Tag for Tools

A major pipe line company makes a practice of having a red tag attached to any tool not in condition to be used. The red tag must stay with the tool until it has been fixed. It is considered a serious infraction of rules when a tool carrying a red tag is used.



General view of Corpus Christi Corp.'s extraction and recycling plant in the Stratton field, Nueces County, Texas, showing office and laboratory building, water circulating pump house, cooling tower, separator installation, and compressor house

Pressure Maintenance Project of Corpus Christi Corporation

By NEIL WILLIAMS

Recycling operations recently started by Corpus Christi Corp. in the Stratton field, Nueces County, Texas Gulf Coast, are facilitating efficient fluid recovery from high-pressure gas-producing horizons being developed there by that company. By return of stripped gas to the producing formation, conservation of the gas is effected, and reservoir pressure maintained. Fluid extracted is an almost water white distillate having an initial boiling point of 90 degrees and an endpoint of 510 degrees, from which 87 per cent U. S. Motor specification gasoline with an exceptionally high lead susceptibility can be cut.

So far, these operations are confined to a 6,400-foot sand, in which the above company now has six wells, exclusive of injection wells. Daily open flow potential of these averages 210,000,000 cu. ft. of gas. In the reservoir, where bottom-hole pressure is 2,900 pounds, this potential production is entirely in the gas phase, determinations of the operators indicate. Fluid recovery is limited to the condensate that can be stripped in production of the gas; consequently, in developing and producing the sand it has been necesary to make provision for the utilization or conservation of large volumes of gas. Properties being developed by the above company comprise a block totaling 8,703 acres. In addition to the 6,400-foot sand, in which recycling operations are being undertaken, various other sands are present, which will be developed as occasion demands. With extension of development and proving up of additional sands, expansion of present recycling operations is anticipated.

Embodied in the recycling plant installation are a number of new and unusual features. In its operation, the fluid is extracted solely by pressure reduction, cooling and expansion of the gas. The stripped gas is picked up by compressors which boost the pressure and return the gas to the sand. Approximately 55,000,000 cu. ft. of gas is being handled daily, representing the capacity of present compressors.

Plant Operation

Gas is received at the plant direct from the wells through the field gathering system at a pressure of 1,500 to 2,000 pounds and a temperature of 115 to 120 degrees. It is cooled in passage through a series of coils in the water cooling tower, and by heat exchange with the colder stripped gas, and by expansion into the high-pressure separator, where the stripping takes place. In this separator pressure is reduced to 1,200 pounds and temperature of the gas to 68 degrees.

The latter temperature is just above the critical point for the formation of hydrates, which restricts further reductions in temperature under present operating conditions. However, a dehydration unit is being installed so that temperatures down to 40 degrees may be realized, these to be controlled by greater pressure drops at the expansion valve just ahead of the separator. With increased pressure drops and lower temperatures in the separator higher efficiency in greater fluid recovery is anticipated.

Designed especially for this installation and built by A. O. Smith Corp., this separator is tested for 2,000 pounds working pressure. It is of laminated construction with a wall thickness of 4½ inches. Total weight of the unit is 55,000 pounds, the separator being possibly the largest ever constructed. In the water cooling tower are six three-pass 2,500-pound working pressure gas cooling coils, three being on the hot side and three on the cold side, constituting two separate stages of gas cooling. The tower itself is a downdraft type with 16 bays. Incoming gas first passes through the coils on the hot side, and then the coils on the cold side, whence it goes to the heat exchanger. On the cold side of the tower also are located six two-pass cooling coils for the engine jacket water.

Water circulating pumps for the tower are of the centrifugal type, driven by a 6-cylinder 100-hp. gas engine. There are two identical units, one serving as a standby. In each there are three pumps, one circulating 1,800 gallons per minute over the hot gas coils and jacket water coils, the second 1,200 gallons per minute through the engine jacket water coils and the third 800 gallons per minute over the cold gas coils; all three are directly driven from a common engine.

Through the heat exchanger, the gas is further cooled by the colder stripped gas from the main high-pressure separator. Temperature of the incoming gas ahead of the expansion valve on the line from the exchanger to the separator runs about 76 degrees. At this point the pressure has been reduced to around 1,300 pounds, about 100 pounds above the pressure held on the separator. This differential in pressure effects the further reduction in temperature of the gas to 68 degrees, the present operating temperature in

(Continued on Page 54)

Injection well for Corpus Christi Corp.'s recycling operations in Stratton field, Nueces County, Texas. Through this approximately 55,000,000 cu. ft. of gas is being returned daily to the producing sand at a pressure of 2,900 pounds

A National Concentric Crank Four-Well Hook-Up with 2 National Type H Back Crank Pendulums and a National Type H-7 Reduction Gear—Location, Fitts Pool, Oklahoma.

A National Three-Well Hook-Up with National Type SH-801 Beam and Post Assembly and Type H Pendulum—Location, Central Oklahoma.

A National Four-Well Hook-Up with Plain Cranks in Gladewater area, East Texas — Superior Two Cylinder Vertical Engine and Ideal Type "OB" Throw-offs in foreground.

National REDUCTION GEARS HAVE WIDE UTILITY IN LIFTING OIL

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NATIONAL Reduction Gears have a wide utility in oil lifting. Used with National Two, Three and Four-Well Hook-Ups in combination with National Beam and Post Assemblies, Back Crank Pendulums, Underpull Pumping Jacks, and Ideal Type OB Throw-offs. They are available in a complete range of sizes and types for every pumping requirement. For back crank installations where counterbalancing is a problem, National Concentric Disc Cranks and Counterweights are especially suitable.

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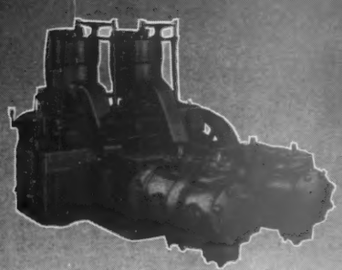
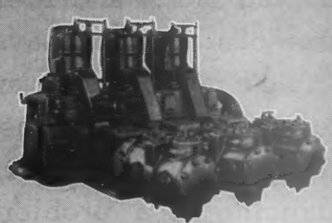
of GAS DAILY!



CLARK 200 H.P.
"Super-2-Angle"



CLARK 300 H.P.
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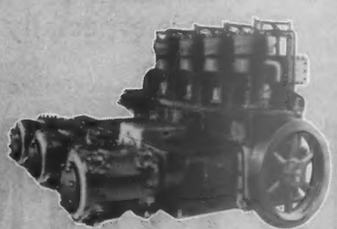

CLARK 400 H.P.
"Super-2-Angle"

CLARK 600 H.P.
"Super-2-Angle"

The Corpus Christi Corporation has just completed, near Corpus Christi, Texas, one of the world's largest and most modern recycling plants for the recovery of distillate from gas.

The plant is handling 55,000,000 cu. ft. of gas daily, taking it from the wells at 2,000 lbs. pressure, and reducing the pressure in the process to 1,200 lbs., from which pressure the compressors return it to the wells at approximately 3,000 lbs. discharge pressure.

The company selected CLARK "Angle" Compressors for this important plant because, while equalling any former type in power and efficiency, these compressors have introduced 4 basic savings: (1) Shipment assembled; (2) Smaller foundations, floor space and buildings; (3) Lowest fuel consumption; (4) Lowest maintenance.

The CLARK "Angle" is proving to be the choice of the industry for distillate service. You should investigate the facts. Get in touch with us.

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Export Office: 30 Rockefeller Plaza, New York. Midcontinent Sales Offices and Warehouses: Tulsa, Okla., Dallas and Houston, Texas. West Coast Offices: Smith-Booth-Usher, 2001 Santa Fe Av., Los Angeles. Foreign Offices: 72 Turnmill St., E. C. 1, London, England; 4 Str. General Poetas, Bucharest, Roumania.

CLARK

000,000 FEET

Battery of Four 6-cylinder, 600 H.P. CLARK Super-2-Cycle, Right Angle Compressors, arranged back to back, in the new Recycling Plant of the Corpus Christi Corporation, near Corpus Christi, Texas.

the separator. When dehydration equipment is installed the pressure differential will be increased to reduce the temperature in the separator to desired levels.

Distillate taken from the gas in the main separator is discharged in turn through two successively lower pressure separators where it is stage weathered before being run to shipping storage. Stripped gas after passing through the exchanger to cool incoming gas is picked up by compressors to be returned to the producing sand. The plant has four 600-hp., 300-r.p.m. Clark compressors of the latest angle type. These take suction at approximately 1,200 pounds, discharging at 2,900 pounds, at which pressure the sand is taking the gas.

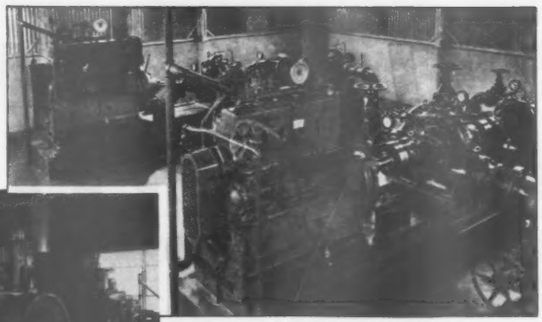
The injection well, drilled and completed specially for the purpose, has taken the gas from the beginning without trouble. Through the sand, the hole was underreamed to $14\frac{3}{4}$ inches, and for completion the 7-inch o.d. long string of pipe was cemented to the top, using 2,550 sacks of cement. Seven-inch screen was run on the bottom of the casing in a full-hole cement job. The well is equipped with 6,000-pound test valves and fittings. A second injection well is being drilled.

In the installation are special safety features to shut the plant down in case of any trouble. Included in these are three 1-inch valves, located at convenient points around the plant, which control all main valves, an 8-inch valve or gate on the incoming gas line, an 8-inch valve on the discharge, and a 3-inch valve dumping to the flare. By closing any one of the three small valves the main valves are automatically thrown, shutting down the plant completely. The main separator also is equipped with a high level control, which in case of high level automatically shuts off fuel gas to the compressors. Engines have overtemperature, low oil pressure and low water cut-offs. Valves are Merco-Nordstrom Hypreseal lubricated plug type. All pipe, valves and fittings are designed according to A.S.M.E. code for their respective particular working pressures.

Electric power for plant use is generated by a 220-volt, 85-ampere 1,200 r.p.m. generator driven by a 4-cylinder gas engine. Water for the cooling tower operation as well as for engines and general use is obtained from deep wells, being supplied by a deep well turbine pump driven by a 4-cylinder gas engine.

The company has a 4½-inch pipe line from the plant to Corpus Christi, a distance of 34 miles, with facilities and connections to serve various refineries in that area, through which line the output of the plant is shipped. Using a 4½ by 10 pumping driven by a 6-cylinder gas engine, the line has a capacity of 5,000 bbls. daily.

(Right) Circulating pumps, driven by gas engines, for spraying water over gas cooling and engine jacket water coils in water cooling tower. One unit serves as stand-by



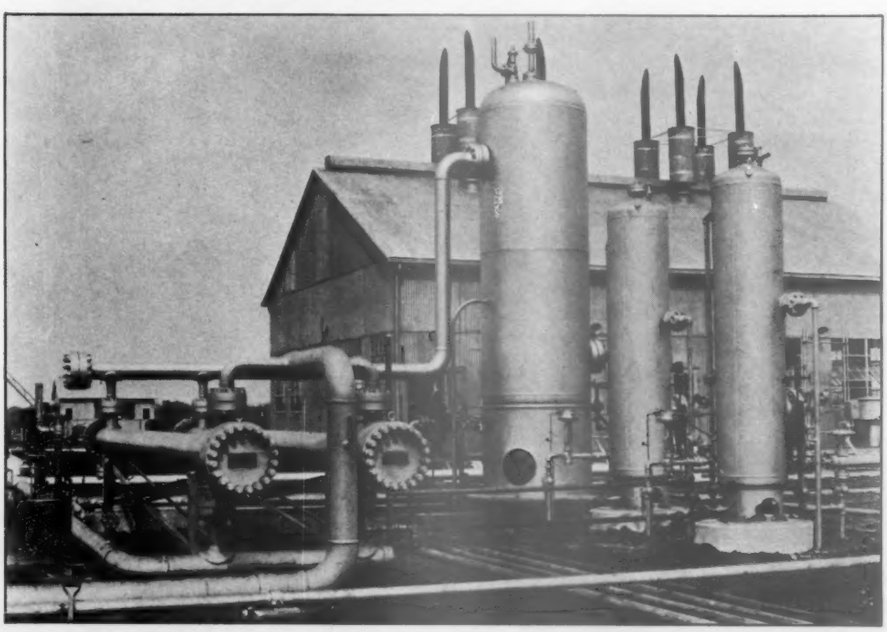
(Left) Interior of compressor plant containing four 600-hp. compressors of latest angle type

Recommend Kinematic Viscosity

At a series of meetings of Committee D-2 on petroleum products and lubricants, there were presented reports on standardization and research work. From the discussions there were indications that a number of changes in the A.S.T.M. standards would be recommended this year.

Subcommittee V on viscosity of the society's reports that the cooperative testing on the new A.P.I. viscosity oil standards Alpha and Beta has been completed and that the results will be available in the near future. It was agreed to report the viscosity of the standards in terms of kinematic viscosity. The Saybolt viscosity values to be reported will be obtained by the use of the conversion table.

Cooperative work conducted by the subcommittee on viscosity indicated that the Zeitfuchs modification of the Ostwald viscosimeter is substantially comparable with the Fenske modification both with regard to accuracy and ease of manipulation. It was, therefore, agreed to redraft Method B covering the modified Ostwald viscosimeter in the method of test for kinematic viscosity (D 445-38 T), so that it will apply to both the Fenske and Zeitfuchs modifications.



Close-up of separator installation with heat exchangers for cooling incoming gas at left. Main high-pressure separator shown in center with two additional separators for stage weathering of recovered condensate or distillate at right

New Texas Oil Map

A new map of Texas and eastern New Mexico showing oil and gas fields and known salt domes has been recently issued by Zingery Oil Map Co., Fair Building, Fort Worth, Tex.

Fundamentals of the Petroleum Industry

Those interested in any phase of the oil industry, as worker, layman, or investor, will find useful a new book by Dorsey Hager, consulting geologist and author of "Practical Oil Geology." This latest book is entitled "Fundamentals of the Petroleum Industry," and Mr. Hager has managed to crowd into its 445 pages a large fund of information.

The book is divided into 18 chapters, the first three dealing with petroleum's contribution to national progress; the history and romance of oil; and individual operators, oil companies and oil-field workers. Those chapters form a background and give the reader an idea of the general practices of this industry.

The next two chapters deal with world distribution of oil and petroleum reserves. Another chapter describes the methods followed in acquiring oil lands and royalties. Five chapters deal with the search for oil, drilling methods and production practices. One chapter covers transportation and storage; another deals with refining and another with marketing. The last three chapters discuss the business of oil, oil securities and the oil industry and legislation. Future trends are discussed briefly.

As a whole, the book will serve many purposes, and will be useful to technical men specializing in some phase of the oil business as well as to others who desire to have a general knowledge of how this vast industry functions. Mr. Hager has selected a number of good reference tables which will serve as indexes to trends, and, in many instances, they will answer general questions often puzzling even to the man who is actively engaged in the industry. The book is well illustrated.

"Fundamentals of the Petroleum Industry" may be purchased through the Book Department of The Oil and Gas Journal, Tulsa, Okla., at the regular established price of $3.50, express prepaid (postage extra outside the United States), and a copy will be forwarded promptly upon receipt of check or money order for that sum. Where company purchase order or check does not accompany order, the book will be sent express c.o.d. to avoid delay.

HYDROCARBON CHEMISTRY

(Continued from Page 42)

version of paraffin hydrocarbons to the corresponding olefins. The process operates usually at pressures of around 1 atmosphere in the range of 500-750° C., (and at space velocities from 500 up to 10,000 or higher), depending upon the charging stock. It is based on the use of catalysts, consisting of oxides of the transition metals of the *VI* (f.i. chromium), *V* (f.i. vanadium), or *IV* (titanium) group of the periodic system on specially developed supports, such as activated alumina. These catalysts are highly selective and lead the conversion in accordance with the general dehydrogenation equation:

$$C_nH_{2n+2} \rightarrow C_nH_{2n} + H_2$$

The scission of the carbon to carbon bond, leading to the formation of carbon, methane and other degradation products, has been practically completely suppressed. Overall conversions of n-butane into n-butenes, i-butane into i-butene, propane into propene and ethane into ethylene of 90-95 per cent of the theoretical are obtained. The process is also a source of practically pure hydrogen (over 90 per cent). The latter is produced in amounts equal to the volume of olefin, in accordance with the above equation.

Burgin, Groll, and Roberts[21] described a process of catalytic dehydrogenation for the production from the lower paraffins of the lower olefins as base materials for synthetic gasoline and chemical products by the use of an alumina carrier activated by various metal oxides. I-butane is reduced to i-butene in a 72 per cent yield at 600° C. Higher temperatures give lower yields. Propane, n- and i-butanes have been dehydrogenated. A slight amount of water—referred to as a monomolecular layer—on the catalyst is stated to be necessary for the reaction. They state that the reaction does not occur in the absence of water. Chromium oxide, vanadyl sulfate, iron and zinc oxides, and reduced nickel are mentioned as catalysts, of which chromium oxide shows the highest conversion rate. Conversion percentages for these hydrocarbons are given from 22.0 for n-butane to 37.4 for propane under different temperature and catalyst composition conditions.

Catalytic Cyclization of Straight Chain Hydrocarbons to Aromatics

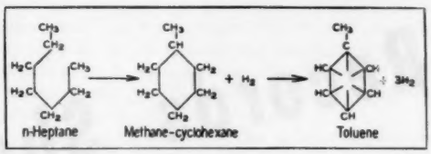
Grosse, Morrell and Mattox presented a paper at the Milwaukee meeting of the American Chemical Society (September 5-9, 1938) on the above subject, in which the following information and data were disclosed:

The problem of converting straight chain hydrocarbons into aromatics has been attempted and partially accomplished in the past by purely thermal cracking. It has been assumed in that work that the aromatics are formed over the acetylene or ethylene route.

The catalysts contain oxides of transition metals of the *VI* (f.i. Cr; Mo), *V* (f.i.V), and *IV* (f.i. Ti) groups of the periodic system distributed on specially developed supports (f.i. activated alumina). The catalysts have a useful life of many hundreds of hours.

Usually temperatures of 450-700 degrees, pressures around 1 atmosphere and contact time of less than 100 seconds are used, varying according to compounds used and the conversions desired.

As an example, we have been able to convert n-heptane into toluene according to Equation 1, with yields of about 75 per cent of the theoretical in one pass or over 90 per cent in recycling. Practically pure hydrogen is produced as a by-product.



Equation 1

Similarly, to mention a few cases, n-hexane was cyclized into benzene, n-heptane into toluene, and n-octane or n-octenes into xylenes and ethyl-benzene.

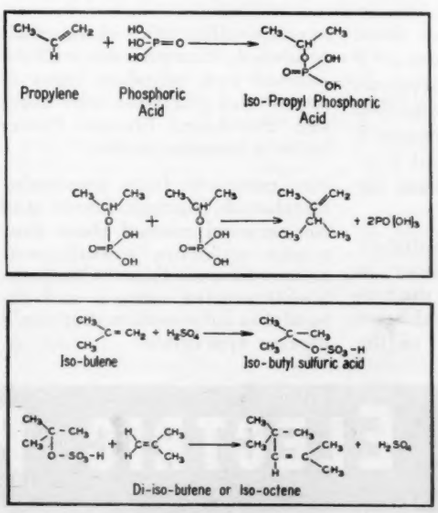
The process of cyclization opens the whole field of coal tar or aromatic hydrocarbon chemistry by the use of petroleum or aliphatic hydrocarbons as raw material. By this process one may convert the straight chain paraffin hydrocarbons, particularly the lower boiling ones, from petroleum; for example those from the Pennsylvania, Mid-Continent, Michigan and other fields, which are essentially paraffinic or straight chain in character, into aromatic or cyclic hydrocarbons. The resulting aromatic hydrocarbons are employed by well-known reactions as the basis of a large number of products including explosives, dyes, pharmaceuticals, medicinals, synthetic perfumes, synthetic flavoring extracts, synthetic resins and plastics ad infinitum.

Other Fundamental Type Reactions

The foregoing reactions of pyrolysis, catalytic dehydrogenation and cyclization are shown as types. Other important reactions which may be cited besides these are polymerization, alkylation, depolymerization, dealkylation, isomerization and hydrogenation.

Polymerization

Polymerization of olefinic hydrocarbons, one of the most important of these reactions, may be effected by heat alone by the action of actinic light, by mineral acids, and by many metal salts. In the polymerization of ethylene some difficulty is experienced in limiting the extent of the reaction to the formation of low boiling products. Propene and butenes are controllably polymerizable by the use of either sulfuric or phosphoric acids, and in mixtures containing iso-butene, normal butenes, and propylene the hydrocarbons may be removed in successive steps by the use of selected conditions of temperature and time of contact with catalysts or conditions may be controlled so as to favor mixed or cross polymerization, for example between normal and iso-butenes to form high yields of isomeric octenes hydrogenatable to octanes of high antiknock value.



Equation 2

The polymerization reaction may be illustrated by the Ipatieff catalytic process employing the so-called solid phosphoric acid. This process is widely used for the commercial production of high octane polymer gasoline and iso-octane, and will be discussed in greater detail later.

The chemistry of the polymerization reactions may be illustrated by Equation 2 showing the reactions of propene and phosphoric acid on the one hand and iso-butene and sulfuric acid on the other.

Similar reactions could be shown with the butenes and phosphoric acid on the one hand, and sulfuric acid and propene on the other. The above reactions also illustrate intermediate compound formation in catalysis.

Alkylation

Alkylation enables one to build up gaseous hydrocarbons into liquid hydrocarbons.

The low boiling iso-paraffins have been successfully alkylated by olefins using principally aluminum chloride, and in some cases boron fluoride as catalysts. For example, Ipatieff in his book entitled "Catalytic Reactions at High Pressures and Temperatures," page 680, shows the alkylation of iso-butane with ethylene in the presence of aluminum chloride. Ipatieff and Grosse[22] show the alkylation of iso-butane, iso-pentane, and iso-octane with ethylene in the presence of boron fluoride catalysts. In all successful experiments the products contained high percentages of primary alkylation products corresponding to the addition of one molecule of ethylene to the iso-paraffin, although some amounts of both lower and higher boiling products were simultaneously formed.

Depolymerization and Dealkylation

Depolymerization is the reverse of polymerization to produce lower boiling hydrocarbons from the higher polymers.

Dealkylation enables one to go through the reverse process of alkylation when desired.

Hence by the process of polymerization or alkylation one may build up hydrocarbons, whereas by the reverse processes of depolymerization and dealkylation one may step down to form lower molecular weight hydrocarbons.

Likewise alkyl groups may be added or removed from the benzene ring. For example, styrene may be made by alkylation of benzene and subsequent dehydrogenation of ethyl benzene.

Isomerization

Isomerization permits one to rearrange the internal structure of hydrocarbons to obtain more desirable hydrocarbons, e.g., changing normal to iso-butene to allow production of iso-octanes. Isomerization of normal into iso-paraffins accompanies the pyrolysis of the lower boiling paraffins and some isomerization is noted in the alkylation of normal paraffins with olefins in the presence of metal halide catalysts, such as aluminum chloride, since products are obtained corresponding to derivatives of the isomeric rather than the normal forms. Isomerization of normal olefins, such as for example normal butenes into iso-butene, is effected by the use of mineral acids at moderately elevated temperatures and relatively short times of contact, which avoid secondary polymerization reactions. Isomerization reactions are important since in general the isomeric forms are the more reactive and the synthesis of more complex hydrocarbons is thus aided.

Other types of isomerization reactions involve the production of methyl cyclo-pentane from cyclo-hexane in contact with aluminum chloride at the boiling point of cyclo-hexane, the conversion of ethylated cyclic compounds to the isomeric di-

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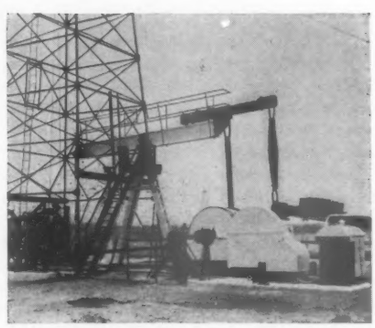

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methyl forms and the isomerization of olefins to naphthenes, which is indicated by Ipatieff[28] as occurring in the presence of metal halides and phosphoric acid. Many isomerizations involve equilibrium reactions.

Hydrogenation

Hydrogenation reactions may be primarily classified as (1) simple addition of hydrogen to eliminate unsaturation without change of structure of the compound, and (2) destructive hydrogenation involving simultaneous decomposition reactions. An example under the first head would be the addition of hydrogen to octenes in the presence of active nickel catalysts to form octanes or similarly, the addition of hydrogen to benzene to form cyclo-hexane. In reactions of this type only a moderate molal excess of hydrogen is necessary for decomposition and secondary reactions may be kept at a practical minimum. Reactions are principally carried out in vapor phase. In destructive hydrogenation reactions more rugged catalysts are employed, higher pressures and higher temperatures. Examples of this type of reaction are the liquefaction of coal and the cracking of liquid hydrocarbon mixtures, such as petroleum fractions in the presence of hydrogen to eliminate unsaturation in the products.

Commercial Applications

Olefins in cracked gases or those made by the reactions discussed, namely pyrolysis and catalytic hydrogenation form the basis of a new synthetic organic chemical industry. Olefins react readily to form many compounds via the chlorides, (ethylene di-chloride), made by simple addition. Hypochlorous acid reacts readily with olefins to form chlorohydrins, which may be converted into glycols by hydrolysis. Formation of alcohols by absorption of olefins in sulfuric acid in the presence or absence of catalyst, followed by subsequent hydrolysis, start with simple addition reactions. The whole field of aliphatic chemistry has been developed, by which the following products have been synthesized commercially: Alcohols, amines, chlorides, glycols, nitroglycols, chlorohydrins, ethers, ketones, acids, esters, etc.

In addition viscosity index lubricating oils and rubber-like compounds are made from long chain polymers by polymerization of olefins with aluminum chloride.

As pointed out previously, the cyclization process permits the production of aromatic from paraffinic or olefinic hydrocarbons which is the starting point of our whole hydrocarbon chemistry and the basis of explosives, dyes, pharmaceuticals, medicinals, synthetic perfumes, etc., from petroleum and other straight chain hydrocarbons.

As a typical illustration of the possibilities of synthesis on the petroleum and organic chemical industries, we shall consider (*a*) high octane motor fuels, (*b*) plastics and synthetic resins and (*c*) rubber; but, to begin with, the development of cracking will be briefly reviewed since this process is the starting point of many of these developments.

Pyrolysis or Cracking of Hydrocarbon Oil

The first commercial cracking plants 25 years ago were cylindrical shell stills approximately 8 by 30 feet of ordinary boiler construction, operating at temperatures of approximately 750° F. and pressures of 75 pounds per square inch, with throughputs of approximately 125 bbls. and with runs or operating periods of 24 hours per day. Yields of gasoline were 30-35 per cent, with low octane ratings. Modern cracking stills with Equiflux heaters operate at temperature ranges of from 900-1,000° F. and higher, and pressures of from 200 to 1,000 pounds per square inch, with periods of operation of six months or more. Capacities of units range up to 20,000 bbls. per day. The yields, depending upon the type of oil, are more than 70 per cent of the gasoline, with approximately 75 octane rating. The following illustrations show the flow and general appearance of the modern cracking process.

Referring to Figure 1, the flow of a two-coil cracking unit may be shown illustrating one type of operation of the modern cracking process.

The crude oil charged to the unit usually contains water as an emulsion, together with considerable dissolved salts which it is desirable to remove before processing the oil. To do this the crude oil is pumped through a heat exchanger under a pressure of approximately 165 pounds and the temperature raised to 250° F. and is then passed to a settling tank. Under this temperature the viscosity of the crude oil is reduced and the vaporization of the water is prevented by the pressure, and as a result the salt water drops out and is removed from the bottom of the settler.

The crude oil is passed from the top of the crude oil settling tank through a series of heat exchangers to raise the temperature to approximately 525° F. This heated crude oil is passed to the crude fractionating column where a light gasoline is taken overhead and a sidecut composed of naphtha and kerosene is removed and pumped directly to the light oil heating furnace. The crude fractionating column for this service is 7 feet in diameter by 47 feet high. The bottoms from this fractionating column are topped crude and this material is pumped directly to the fractionating column of the cracking unit.

The topped crude passing down through this fractionating column contacts the hot ascending vapors and a partial fractionation takes place. The vapors passing up are split into a liquid sidecut which is pumped to the light oil furnace and heated to a temperature of approximately 975° F., and an overhead consisting of the gasoline and gas. The bottoms from the fractionating column, referred to as heavy combined feed and consisting of the heavy ends of the charge and of the recycle stock, are pumped through the heavy oil furnace where the temperature is raised to approximately 910° F. The cracking unit fractionating column is 10 feet in diameter by 58 feet high.

The light oil heater has a rating of 41,000,000 B.t.u. per hour absorbed by the oil and an outlet pressure of 600 pounds. The heavy oil heater has a rating of 35,000,000 B.t.u. per hour absorbed by the oil and an outlet pressure of 300 pounds. The discharges from both these heaters pass to the top of the reaction chamber. The reaction chamber, which is 6 feet in diameter by 30 feet high, is maintained at 300 pounds by a pressure control valve at the bottom outlet.

The hydrocarbon mixture from the bottom of the reaction chamber passes to the flash chamber. The flash chamber is 10 feet in diameter by 30 feet high. The flash chamber and subsequent equipment through the condenser and to the receiver is maintained at a pressure of approximately 75 pounds. The material entering the flash chamber is separated into bottoms of cracked residue, and the overhead vapors of the gas, gasoline and recycle stock. The vapors from the top of the flash chamber pass through a heat exchanger and then into the fractionating column, contacting the topped crude oil as previously described.

The vapors from the top of the fractionating column at a temperature of 375° F. pass through heat exchangers and a condenser into a receiver where a separation of the gas and cracked gasoline is made. The cracked gasoline has the required endpoint and is passed to a stabilizer to produce the required vapor pressure gasoline which normally varies from 8 to 12 pounds Reid depending on the season of the year. The cracked gasoline may be water washed, caustic soda or plumbite treated and then fortified against deterioration by antioxidants. It may be colored by a dye, and as such is suitable gasoline for marketing.

Coincident, the next large development for conversion of gases from cracking hydrocarbon oil amounts to about 300 billion cu. ft. per year. These are now being converted into motor fuel comprising polymer gasoline and iso-octanes.

Catalytic Cracking

Catalytic cracking is an important recent commercial development which has many possibilities in the production of large yields of high octane motor fuel, e.g., 85 per cent of gasoline of 81 octane may be produced thereby from a Mid-Continent gas oil. Heavier oils may also be converted. The gases produced simultaneously with motor fuel contain a high percentage of the higher olefins and may be polymerized into additional yields of high-octane motor fuel. Catalysts employed for catalytic cracking are rugged and are regenerated at suitable intervals. Alternate regeneration of the catalyst and conversion make the operation continuous. The temperatures employed in catalytic cracking are of the order of those employed in pyrolytic cracking, and the pressures are very much lower.

High-Octane Motor Fuels Polymer Gasoline

The ever-increasing demand for high-compression antiknock motor fuels and the large amount of hydrocarbon gases available burned for fuel or wasted stimulated the development of polymerization processes. The volume of polymer gasoline which may be obtained yearly from all sources is estimated to be almost one-half of the motor fuel now being produced from other sources. Based upon present operations the yield or production of polymer gasoline will exceed 20 million barrels.

Polymer gasoline can be made by the thermal treatment at temperatures of from 500° to 700° C. and pressures varying from atmospheric to several thousand pounds per square inch. This process does not give the maximum conversion and is therefore somewhat wasteful. With catalytic polymerization employing, for example the Ipatieff process for the treatment of gaseous olefinic hydrocarbons comprising, e.g., the higher olefins such as propene and butenes, practically theoretical yields of olefins may be obtained at temperatures of 200° C. and 200 pounds pressure per square inch. The catalytic gas polymerization process is being applied commercially to the gases from cracking. The polymer gasoline has an octane rating in excess of 80 and on a blending basis up to 135-octane value, depending upon the gasoline to which it is blended and the percentage.

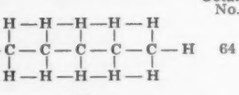
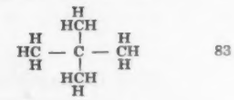
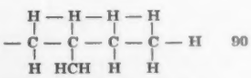
Selective polymerization employs higher (about 300° F. and 550 pounds per square inch), temperatures and pressures than general polymerization and utilizes the normal and iso-butenes present in cracked gases for the production of iso-octenes. The iso-octenes have an octane rating of approximately 84 and a blending value in excess of 150. The iso-octanes produced by hydrogenation have octane ratings of from 95 to 98 and individual octanes have values in excess of 100. The iso-octane gasoline is of extreme importance in aviation, both for commercial and fighting planes. The iso-octanes are blended with lower boiling petroleum fractions for starting and a small amount of ethyl fluid to bring up the octane value to 100. An improvement in power output of 30 per cent is shown with 100-octane fuel compared with 87 octane. The saving in pay load for large commercial transports may be sev-

eral thousand dollars. Millions of barrels of iso-octane will be produced currently per year with ever increasing amounts for the needs of military aviation.

PHYSICAL CONSTANTS OF OCTANES

	M.P. °C.	B.P. °C. at 760 mm.	Density n_D^{20}
C_8H_{18}, n-octane	−56.82	125.68	0.70256
2-Methylheptane, iso-octane	−111.3	117.2	0.6980
3-Methylheptane	....	119.0	0.7054
d-3-Methylheptane	....	117.0	0.712
1-3-Methylheptane	....	115.0	.....
4-Methylheptane	....	118.0	0.7165
3-Ethylhexene	....	118.6	0.7128
2,2-Dimethylhexane	....	106.9	0.6953
2,3-Dimethylhexane	....	115.8	0.7118
1-2,3-Dimethylhexane	....	113.5	.....
2,4-Dimethylhexane	....	109.8	0.7030
d-2,4-Dimethylhexane	....	111.5	0.704
1-2,4-Dimethylhexane	....	110.5	0.704
2-,5-Dimethylhexane	90.7	109.40	0.69378
3,3-Dimethylhexane	....	111.3	0.710
3,4-Dimethylhexane	....	117.9	0.7193
2-Methyl-3-ethylpentane	....	114.0	0.7030
3-Methyl-3-ethylpentane	−90.9	118.4	0.7270
2,2,3-Thimethylpentane	....	110.1	0.7173
2,2,4-Trimethylpentane	−107.41	99.3	0.6918
2,3,3-Trimethylpentane	−119.1	114.6	0.7253
2,3,4-Trimethylpentane	....	113.8	0.7194
2,2,3,3,-Tetramethylbutane	102.2	106.5	.....

Structure Vs. Antiknock Value

		Octane No.
Normal pentane		64
2,2-Dimethylpropane		83
2-Methylbutane		90

Plastics and Synthetic Resins

Synthetic resins have been prepared from olefins and diolefins obtained from cracked petroleum distillates by polymerization, for example with aluminum chloride. Resins were somewhat poor in quality compared to present-day synthetic resins.

The plastics industry is one of the most spectacular because of its fast growth, wide variety of uses, protective coatings, molded and machined articles. The output of synthetic resins increased from 8 million dollars in 1924 to 100 million dollars in 1934 and it has probably doubled since

Phenolic resins are made by the reaction of phenols, xylenols, etc., with aldehyde. The benzene made by cyclization from petroleum hydrocarbons may be made into phenol by chlorination by subsequent hydrolysis or by the usual method of sulfonation followed by alkali fusion. Formaldehyde is already being made by the oxidation of natural gas.

Phenolic resins are thermo-setting, i.e., they become insoluble, infusible on heating under pressure. They also become dark colored. Polystyrene and vinyl resins are colorless and thermoplastic, i.e., they soften under heat, but at relatively high temperatures. They are therefore more desirable for some purposes than phenol, formaldehyde or urea types.

Plastics are derived from cellulose, e.g., cellulose acetate usually has a low temperature softening point. Polystyrene resins are made by the polymerization of styrene, which in turn can be made by the alkylation of benzene with ethylene to form ethyl benzene, with subsequent dehydrogenation by pyrolysis or catalysis to form styrene. This brings us back to the reactions discussed to make ethylene and cyclic compounds. Thus petroleum instead of coal tar may be the source of these resins.

Vinyl resins are derived principally from vinyl chloride and vinyl acetate and may be synthesized from ethylene or acetylene. Vinyl chloride is made by direct treatment of ethylene with halogen, followed by sodium acetate treatment. Vinyl halide is made from ethylene by the action KOH on dihalides or the addition of a hydrohalide to acetylene. Both the acetates and halides are readily polymerized to form resins.

The acrylic resins may be derived from ethylene or acetylene.

Summarizing: The principal materials from which resins may be produced are aromatic hydrocarbons, ethylene or acetylene, which may in turn be produced from great sources of hydrocarbons such as petroleum, natural gas and coke by the processes of cyclization, dehydrogenation and the like.

Synthetic Rubber

Considerable progress has been made in the production of so-called synthetic rubbers. A process of synthesizing butadiene and its homolog isoprene to synthetic rubber by Wallach[24] exposed iso-prene to light. Metallic sodium independently used to polymerize iso-prene to rubber by Matthews and Harries[25] in 1910. Increased temperatures increase the reaction.

Basic raw materials for these rubbers may be made from hydrocarbon oils, gases or coal. So-called buna rubber, made in Germany, is used for tires and is a polymer of butadiene. Butadiene is synthesized from acetylene from the following steps:

Acetylene → Acetaldehyde → Acetaldol → Butene glycol → Butadiene → Rubber polymers

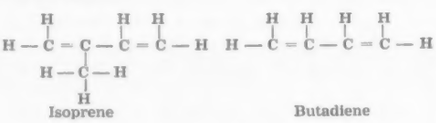
Neoprene

Neoprene, a joint development of Nieuwland of Notre Dame and the Du Pont Research Laboratories, is formed by passing acetylene into an aqueous solution containing powdered cuprous chloride. This is converted to chloroprene by the addition of hydrogen chloride and polymerized into a rubber-like compound.

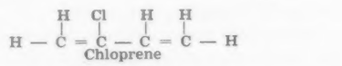
Thiokol

Thiokol is removed from true rubber, but has useful properties made by treating ethylene-dichloride with sodium polysulfide.

The development of the synthetic rubber industry depends upon the production of cheap butadiene and iso-prene. The pyrolysis of liquid or gaseous hydrocarbons of catalytic dehydrogenation of butenes or pentenes or corresponding saturated hydrocarbons, butanes and pentanes, points the way to cheap production of butadiene and iso-prene.



Isoprene Butadiene



Chloprene

Synthetic Fats

One could cite a great many important possibilities of synthetic chemistry employing raw materials of petroleum and coal, e.g., the curious possibility of producing edible fats or fats for soap making may now be a reality with the production of glycerol by the hydrolysis of the chlorohydrins and the production of fatty acids by the controlled oxidation of paraffin and other hydrocarbons made by the Fischer-Tropsch reaction. Both of these reactions are being carried out commercially and the step of combining glycerol with fatty acids should not be difficult.

Sources of Hydrocarbons

A comprehensive study by the A.P.I. (1935), of oil production and reserves showed that during the last 35 years reserves of oil have increased.

The major source of hydrocarbons for the future is coal. The conversion of coal into liquid hydrocarbons may be brought about by either one or two major processes.

1. High-pressure hydrogenation, wherein a mixture of pulverized coal with oil or tar is converted by destructive hydrogenation (average temperature 450° C., average pressure 200 atmospheres), with yields of 140 gallons of liquid hydrocarbons for each metric ton of coal treated, including motor fuel, Diesel oil, heavy residue and hydrocarbon gas (1,200 cu. ft.).

2. The Fischer-Tropsch process, wherein water gas is produced by the simple reaction $C + H_2O \rightarrow CO + H_2$. Water gas is passed over catalyst (iron impregnated with potassium carbonate), at 150 atmospheres pressure and 400-450° C. The resulting product is an aqueous mixture of aliphatic alcohols, aldehydes, ketones, acids and esters known as synthol. When treated at atmospheric pressure and temperature of approximately 270° C., yields of approximately 50 per cent of hydrocarbons by weight ranging from methane to solid paraffin wax are obtained. A catalyst is employed, including iron or cobalt and other oxides. Simple iron catalysts are also used.

The use of these methods of conversion of coal into hydrocarbons has been estimated by Morrell and Egloff to produce sufficient motor fuel to supply the requirements of the world at our present rate of consumption for over 25,000 years. This is based on an available supply of coal of 7,400 billion tons and does not provide for the normal uses of coal, which if used at the present rate should last over 5,000 years at the present rate of consumption. Hence a division of uses will provide 5,000 years of motor fuel for each 1,000 years of deduction from the use of coal for other purposes. Cracking of tars and oils obtained from coal and oil shales should provide approximately 1,000 years' supply of motor fuel. According to present knowledge the United States has about one-half of these natural resources. Various tars from lignite, peat, wood, as well as from animals and vegetables may be cracked to produce motor fuel. The wood tar vegetable and animal oils represent a replaceable supply.

It is quite evident from the above discussion that the developments in hydrocarbon chemistry and technology have not only prepared us for our future motor fuel requirements, but also for an ample and rapid development of a new synthetic organic chemical industry.

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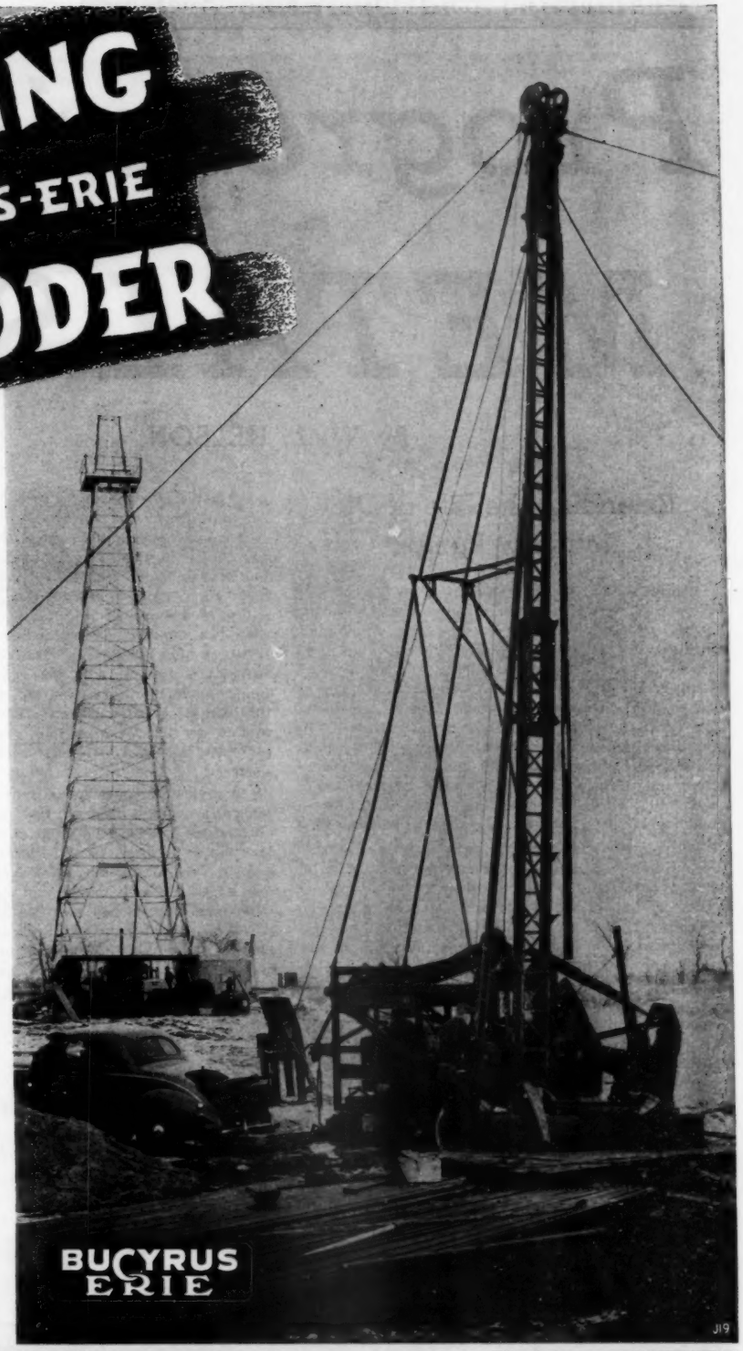
ANNOUNCING THE NEW BUCYRUS-ERIE 24-L SPUDDER



HERE IT IS . . . THE RIG YOU'VE BEEN WAITING FOR — a modern spudder for low-cost drilling and tailing-in.

You'll find the NEW Bucyrus-Erie 24-L Spudder has ample capacity to bail, drill, and swab in a range of depths from 1,000 to 2,000 feet. This spudder with its high-speed, efficient operation has been built for you — built right, to make money in the oil country.

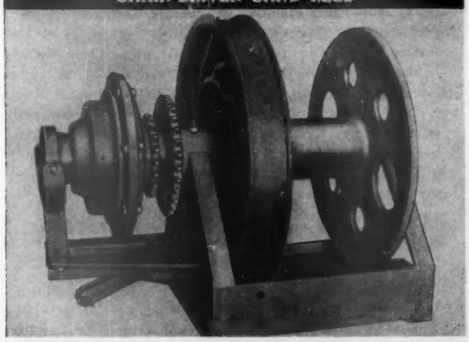
One of the important features for high-speed, low-cost tailing-in is the sand reel. Chain-driven, it is completely positive in its action — never slipping, it utilizes the full power of the 24-L's 40 horse power engine. This chain-driven sand reel has independent clutch control, a band brake of ample capacity, is free wheeling, and has an average hoisting speed of about 900 feet per minute.

The bull reel, with ample capacity to drill and swab to depths of 2,000 feet, is gear driven, controlled through a large Twin Disc clutch, free wheeling, and has an average hoisting speed of about 200 feet per minute.

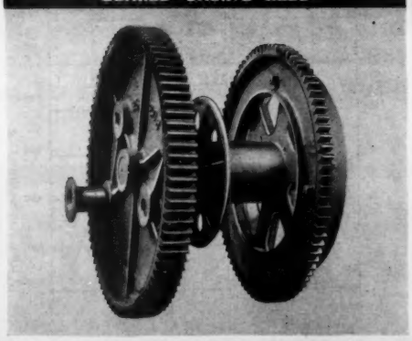
A gear-driven casing reel, which greatly facilitates quick and accurate setting of heavy strings of pipe, is standard equipment. This unit has an oversize band brake and is driven through the same Twin Disc clutch that controls the bull reel.

Now is the time to investigate. Your copy of the Bucyrus-Erie 24-L bulletin will be sent upon request.

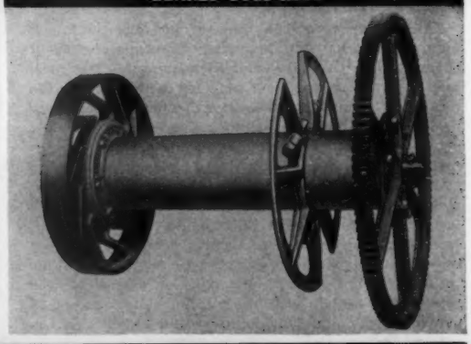
CHAIN-DRIVEN SAND REEL



GEARED CASING REEL



GEARED BULL REEL



BUCYRUS-ERIE COMPANY

SOUTH MILWAUKEE, WISCONSIN

Progress in METALS

By W. L. NELSON

Extending the Life of Oil Refinery Pumps

Almost every refinery operation, from the charging of crude oil into distillation units to the shipping of the refined products, involves some form of pumping machinery. In the intermediate refining stages of most present-day refining methods, successful and economical operation is considerably dependent upon the efficiency of the pumps. In order to withstand temperature conditions ranging from —50° F. to 900° F.; pressures from subatmospheric ranging to 2,000 pounds per square inch; corrosion by sulfur, dilute acid or brine, and sulfuric acid; and abrasion by particles of coke, fullers earth, and pipe scale, it is obvious that a great variety of alloy materials must be employed.

Reflux pumps for handling light oil fractions sometimes present a difficult maintenance problem. The oil being pumped may contain considerable moisture and small amounts of weak hydrochloric acid. Naturally, this causes destructive corrosion of many of the working parts. Casing wearing rings on these pumps are maintained with difficulty. Various refineries are using chromium-molybdenum-aluminum steels, nickel cast iron, 13 per cent chromium steel or hard-faced 4 to 6 per cent chromium steel. Since the corrosion on pumps of this type is complex, it is difficult to state which material can be used most successfully unless a service trial is made. However, hard-faced chromium steel rings have proved satisfactory in many cases.

The service life of centrifugal pump shaft sleeves depends on many factors. Packing wear, alignment, shaft speed, temperature, and corrosive elements in the oil, all affect their service life. Corrosion and wear of the sleeves are certain to make the packing problem more difficult, and leakage from stuffing boxes represents one of the refiner's most serious losses. A hardened chromium-molybdenum steel, an 18-8 chromium-nickel steel, or a hard-faced carbon steel shaft can often be used with good results. Low alloy steel sleeves, too, when hard-faced with cobalt-chromium-tungsten alloy, show good corrosion and wear resistance. When properly made, such a sleeve is almost ideal for the purpose.

All of the materials used in hot oil centrifugal pumps should have approximately the same coefficient of expansion. Ordinary- and high-strength cast irons, cast steel, or forged steel may be used with success for outer casings. Good castings, when properly annealed, will sometimes show a performance almost equal to that of forgings. If the oil is particularly corrosive, the use of an alloy steel is recommended. A 4 to 6 per cent chromium steel, containing 0.5 per cent molybdenum, has proved satisfactory. The inner casing may be made of a heat-treated, cast low-carbon steel, but a cast 4 to 6 per cent chromium alloy steel is preferable because of its greater resistance to corrosion. It will also accumulate coke at a much slower rate than will plain carbon steel. Impellers made of 25 per cent chromium and 12 per cent nickel steel, or with hard-faced tips, show practically no corrosion or erosion after several years of service. However, it is general practice to fit chromium steel impellers with wearing rings, which are faced with a layer of cobalt-chromium-tungsten alloy (Haynes Stellite), on the wearing surfaces. Hard-faced surfaces are also largely used for balancing discs and breakdown drums. The base material is usually 4 to 6 per cent or 11 to 13 per cent chromium steel bar stock.

Line valves are used extensively in chemical plants, as well as in oil refinery equipment. Special materials here, too, have considerably reduced valve replacement costs. For instance, in one midwestern refinery, valves in the sulfuric acid line had never lasted longer than two months before the introduction of an acid-resistant alloy known as "Hastelloy" alloy A. These valves are used in a 98 per cent sulfuric acid solution, at a temperature from 98° to 100° F. Valves of this nickel-molybdenum-iron alloy have been in continuous service for over four years, and have given extremely satisfactory service with no attention whatsoever.

In reviewing the material requirements of refinery pumps, a definite need for both nonferrous alloy and alloy steel and iron parts is disclosed. The only restriction on their use is the slightly higher cost. However, if various small parts of a pump are hard-faced, less expensive base metals can be used. These parts will then often result in definite savings over new parts of special materials, not only because of the longer life of hard-faced parts, but also because of decreased packing wear, less time out for shutdowns, and greater efficiency and operation.

Communication from the Haynes Stellite Co. and the Electrometallurgical Co.

Temperature Sensitive Magnetic Alloys

It has long been known that iron, cobalt and nickel lose their magnetic properties at various temperatures but not until recently have various alloys been studied from the standpoint of magnetic sensitivity to temperature.

Messrs. Jackson and Russell, of the Battelle Memorial Institute, Columbus, Ohio, report the behavior of such alloys in the magazine entitled "Instruments," for November, 1938. The iron-silicon-nickel-chromium alloys were selected as the most suitable alloy system that has been studied, but the silicon content is limited to a constant value of 0.3 per cent for all alloys. The temperature above which the alloys are nonmagnetic is given in Figure 1. Other valuable data concerning the properties of these alloys are given in the original paper.

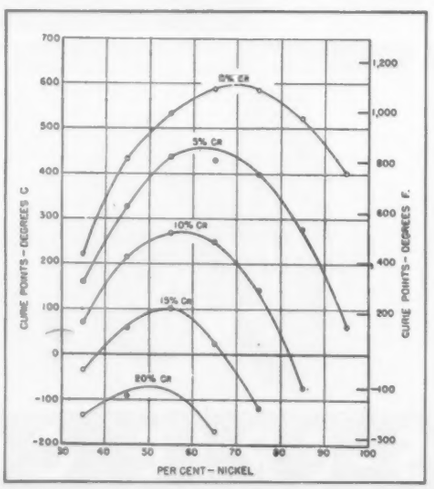


Fig. 1—Development of temperature-sensitive magnetic alloys

Used as cores for electromagnets or transformers, or as armatures for either electromagnets or permanent magnets, a great variety of applications is seen for these alloys. Ovens, furnaces, and boilers, ventilating and air-conditioning equipment, alarms and indicating instruments and protective devices for power lines and motors are some of the many types of equipment in which these unique alloys may serve a useful purpose.

The extensive use and need of automatic control in the refining branch of the oil industry, makes any development in control instruments of primary importance.

Nickel in 1938

The annual survey of the International Nickel Co. shows that the consumption of nickel by the petroleum industry in the form of special steels, irons, alloys, etc., increased during 1938 although the consumption of nickel in all industries showed a decline. This occurred in spite of the fact that operations in the petroleum industry were somewhat unfavorable and thus the increase in consumption can only be attributed to an expanding demand for alloy steel. The trend toward ever deeper drilling requires equipment that can withstand increased stresses and more severe conditions of abrasion. Three services for nickel or its products that are gaining rapidly are:

1. Nickel-copper alloy steel for drill pipe.
2. Cupro-nickel (70-30) condenser tubes for corrosive water.
3. Sheet nickel for lining the holds of tankers and monel linings for fractionating towers for hydrochloric or organic acid corrosion.

Unusual Steel Contains Lead

We have always thought that lead does not alloy with iron—and yet, the Inland Steel Co. and the U. S. Steel Corp. are advertising new lead-treated steels by the names of Ledloy and Plus Lead. Details of manufacture, quantities of lead that are used, etc., have not yet been made public.

It is understood that the products obtained by adding lead possess superior cutting qualtites and are still hard and strong. Steels possessing such properties can be used for machining operations that have heretofore been impossible because of difficulty in cutting and machining, and the handling of steels that have heretofore been troublesome and costly can be accomplished with relative ease.

Now that the shock of learning that lead is actually being used in steel has had time to lessen, we can recall that lead has long been used in valve brasses and that sulfur which is commonly thought of as a deleterious element in steel is useful in making "free-cutting" screw steel. Another example of the impossible is the recent use of higher phosphorous contents in some "free-cutting" steels and in some low-alloy high-strength steels.

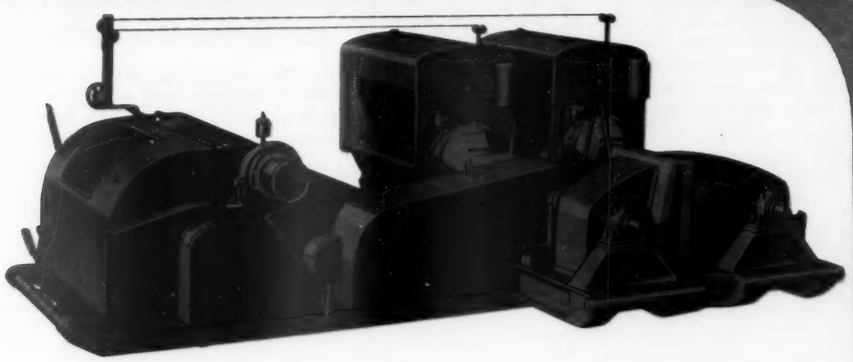
The upshot is that in spite of the tremendous study of metallurgy that has been made and the large number of alloys that have been developed, there is still much to be learned and that some of our cherished precepts may be only half truths.

New Well Bit Inserts

New inserts of the Haynes Stellite Co., of Kokomo, Ind., have recently been developed. These inserts for oil-well drilling bits, differ from the old inserts only by having a small flat area on one side which keeps them from rocking while the welding operator bonds them in the steel. This design allows them to be supported very rigidly and results in a bonding that resists shattering and breaking. Three sizes, Nos. 14, 15, and 16 are of suitable length for all bit requirements.

Your Next Contract

– comes sooner with DEPENDABLE EQUIPMENT



Well drilling is a competitive and highly specialized business. It takes capital, good management and steady work for successful operation.

Financial institutions and supply sources, from whom the drilling contractor obtains working capital and credit, and producers to whom he looks for work, judge him by the type of equipment he uses and the success of his operations.

The competent operator who uses up-to-date, dependable equipment handles his work efficiently and profitably under competitive drilling conditions. He saves money for the producer—makes money for himself—keeps busy. He knows where his next work is coming from and where to obtain credit to carry on his operations. His services are in demand. His account is a desirable one.

Keep Busy with Bridgeport Equipment

Users of Bridgeport equipment come back to us again and again. They keep busy—usually with several rigs—for Bridgeport equipment helps to keep the work coming their way.

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PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Cold Oil Produced From Dakota Sand Well

A shallow well in the foothills north of Denver produces a small volume of 39-gravity paraffin base oil. The oil from this well is coming from a thin and very hard sand of the Dakota series penetrated at approximately 1,100 feet. A very small amount of gas which burns with a deep red flame accompanies the oil. The oil when produced even in the hottest weather is extremely cold. Can you explain the unusual coldness of this oil?—J. A. W.

It is very difficult for us to give you any definite answer to your letter because there are several facts not stated.

We do not know the formation pressure or the analysis of the gas. They are both important. You could secure a sample of the gas and have it analyzed in Denver and this might give you the answer to your question about the temperature of the oil.

It is reported that gas from the Dakota shows 20 per cent carbon dioxide and also nitrogen. A hydrocarbon containing as much as 40 per cent carbon dioxide will burn. It is also stated that some element accompanying the nitrogen will produce the deep red flame which you report.

From those two facts it can be deducted that this gas is under considerable pressure in the formation, it might be as high as 500 pounds per square inch. If the sand is tight, that is the pores between the sand grains are small, there will be a tendency for the gas to expand quickly just after it leaves the face of the producing formation. As this is the bottom of the hole in which the oil accumulates this expansion of gas will take heat from the oil and chill it. It is kept cool until it reaches the surface by the continued expansion of the gas as it accompanies the oil up the flow string of pipe.

Abstracting Title to Lease

When a landowner grants an oil and gas lease on his farm does the lessee have the abstract brought up to date at his expense? Is there any expense to be paid by the lessor after the abstract has been brought up to date in the event the lease is sold by the lessee to someone else? Would the landowner be required to dispose of part of his royalty to cover such expenses? It is possible, during the 10-year period of the lease, that the landowner would be subject to more abstract costs than he would receive in royalty? Many landowners in this vicinity have not leased because they know little about the oil business. They do not desire to "hold out" merely to prevent development but rather are holding off until more can be learned about the procedure. Any information you can give will be appreciated.—F. S.

We take it you and others have been confused by statements made by some lease men operating in your neighborhood and our first suggestion is that you secure a copy of "Law of Oil and Gas Leases and Royalties," by Samuel H. Glassmire, which will give you all the information needed about procedure in such transactions. Copy of this book may be secured through the Book Department of The Oil and Gas Journal for $10.

Next, it is advised that no lease be granted unless it is covered by Form 88, which is the form most used in the Mid-Continent area and is safe to sign. It provides for the restoration of the land to its original condition after the wells are abandoned and stipulates other conditions fair to both parties making the lease.

In answer to your questions: When the price paid for the lease is less than $5 per acre it is customary for the lessee to have the abstract brought up to date. He pays for this abstracting, and the supplement together with the abstract furnished by the landowner is attached to the lease and held by the lessee during the term of the lease.

If for any reason it is necessary for the landowner to use the abstract during the period of the lease most lessees will loan the abstract and supplement to the landowner for a reasonable period. If he has to fulfill certain requirements to meet the conditions under which he is operating that expense must be borne by him but this does not involve any cost due to lease transfer during the life of the lease.

It is not necessary for the landowner to part with any of his royalty to cover abstracting or other expenses, especially where the bonus paid for the lease is low.

Under normal conditions the landowner will not be subject to abstracting costs that will more than equal the money paid for royalties during the life of the lease. In fact the landowner should not be required to stand any expense of abstracting where the lease money paid is low. If Form 88 is used any local attorney can advise the landowner about his rights, and if a copy of Glassmire's book on leases and royalties is available practically all important questions covering such transactions can be answered.

You and your neighbors are right in proceeding slowly in making leases, but if a few simple rules are followed no fear need be expressed about leasing the land for oil and gas exploration because most leasemen and oil companies are honest and may be trusted to do what is right in such matters as they are for the most part routine procedures in the land and lease department and in the legal departments and it is as much to their interest to protect the landowner as themselves.

We trust this will give you some answers to the problems troubling you, and if we can assist further please let us know.

Description of Producing Formations

Where can I obtain a book which will describe the producing formations (sands, limes, dolomites, chats, etc.) in different fields of the United States?—E. L. T.

The U. S. Geological Survey has recently issued a two-volume "Lexicon of Geologic Names of the United States" in which you will find description of practically all formations in this country. A brief history of places where the formations are located is given, together with reference to articles covering each formation described. Copies of these two volumes may be obtained from the Superintendent of Documents, Washington, D. C., for $2.50 for the set.

Does Bituminous Sediment Contract and Expand Like Petroleum?

Will bituminous sediment, such as found by using a centrifugal machine, expand and contract with variation of temperature at the same ratio as the crude oil in which it is found or is there a difference?—F. L. S.

No. The sediment is a mixture partly organic and partly inorganic. Each element in the mixture has a different coefficient of expansion, also variable heat transfer properties.

While this may be stated in general terms it would be impracticable to attempt to apply this theory to the determination of the difference in expansion between fluid and b.s., and it is probable if careful work on this problem were done in the laboratory the actual difference detected would be negligible and impossible of application to working conditions as you find them.

In the centrifugal machine tube the b.s. would be wetted by the fluid, in fact so soaked with the oil that it is probable the inorganic particles would be surrounded by a film of oil and therefore protected against temperature influences. Under such circumstances the expansion of fluid and sediment would be practically the same—at least of too small a difference to determine by any simple method, and if determined the factor would be too small to apply in practice.

Completing a Wildcat Well

I am submitting a series of questions covering the completion of a wildcat well with cable tools. Your suggestions will be appreciated.—J. D. C.

In drilling wildcat oil wells, using standard equipment, is it the usual plan to drill them dry (only a little water in the hole) or wet (the hole almost full of water)?

All water should be shut off with casing and the well kept dry so that when a sand is encountered you can tell if it carries oil, gas or water.

If, while drilling with 1,200 to 1,500 feet of water in a hole, an oil showing should be encountered that gave off a strong smell of oil, also many rainbows and black streaks of oil on the water when bailing, would this be considered a sufficient showing, or evidence of oil, to justify casing off the water and testing the sand?

Yes. Shut off the water and bail hole dry and let it set for a few hours at least, then bail again to see if the hole begins to fill up with oil or water.

Can a fair test be given an oil sand with 1,200 to 2,000 feet of water on it?

No.

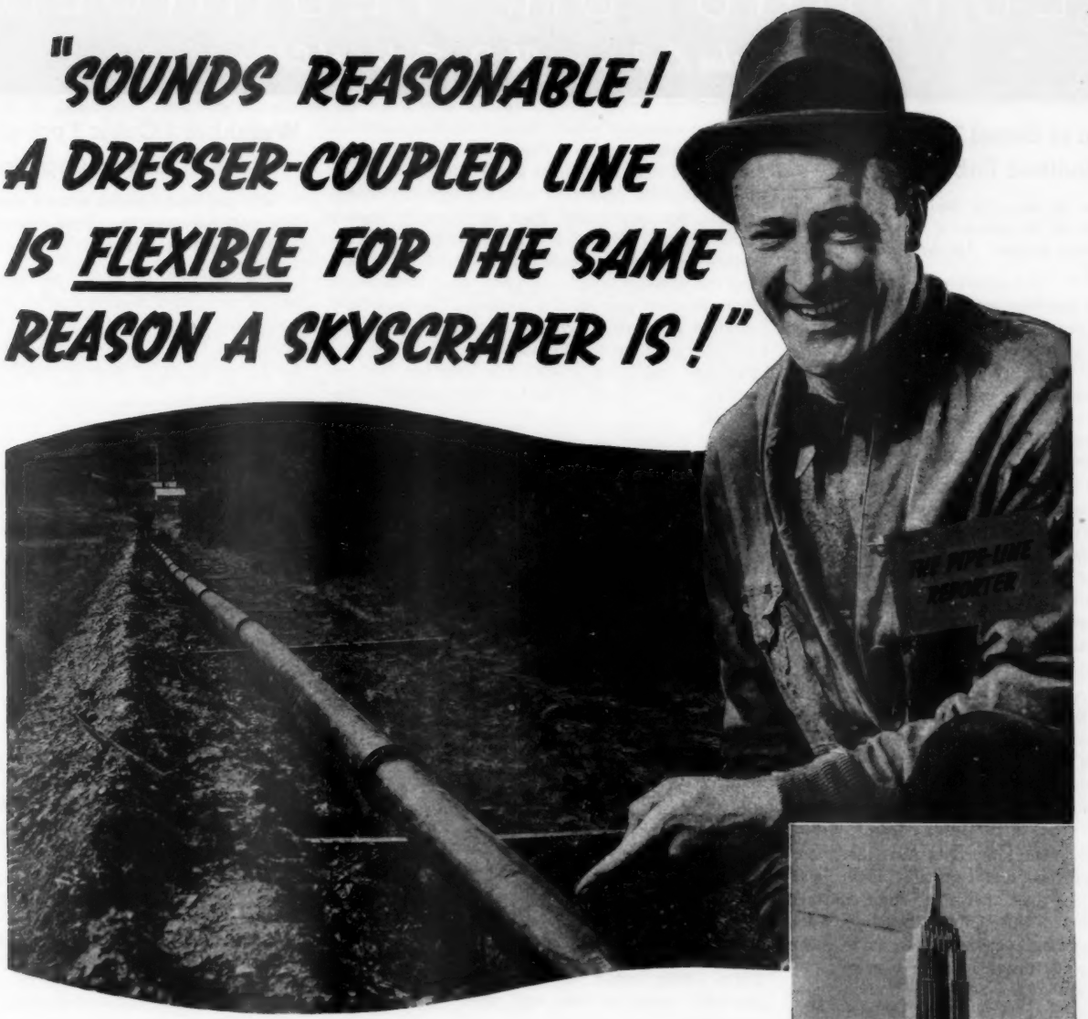
Do oil wells ever blow in when the water pressure on the oil-bearing sand is greater than the gas or rock pressure.

No.

Is it sometimes necessary to shoot a well to make a fair test of an oil sand? If so, why?

Yes. Always shoot a good showing in hard sand or sandy lime formation in a wildcat well before abandoning the well so that you may be sure that you have given the well a good test. A shot might make a commercial well.

"SOUNDS REASONABLE! A DRESSER-COUPLED LINE IS FLEXIBLE FOR THE SAME REASON A SKYSCRAPER IS!"



24" O.D. Steel Coupling, Style 38

Whether it's a tall building or a buried pipe line, *flexibility* is important. Both are man-made "structures"—both are subject to deflection, vibration, expansion and contraction caused by nature's forces. • In a pipe line, these movements are usually more pronounced—hence the need for flexibility is greater. • The trouble-free performance of Dresser-coupled lines is due (in large part) to the *resilient* rubber-compound gaskets in the joints. Dresser gaskets *flex* with the pipe, safely *absorbing* harmful pipe movements.

NOTE TO READER: This is the twenty-ninth in a series of advertisements dramatizing one engineer's experience with his first Dresser-coupled line. For the complete story, write for Bulletin 351.

DRESSER

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Lubrication of Diesel Tractor Engines With Modified Lubricating Oil

Kindly advise us about the kind of products added to lubricating oils for the purpose of reducing ring sticking in Diesel tractor engines. Are these substances corrosive?—H. O. C.

After many years of cooperative research with the petroleum industry, a Diesel engine manufacturer has encouraged the use of specific lubricants designed to satisfy exacting service conditions. The pioneering work has been accomplished on a well-known type of Diesel engine because of the ideal performance characteristics which could be carefully controlled and maintained on that type of engine.

The base oils thus far found most satisfactory have been derived from California and South Texas crude oils. These have been modified by the addition of special soaps of approximately 1 per cent. Such compounds as aluminum naphthenate, calcium phenolstearate, and calcium dichlorostearate have given excellent results in promoting maximum freedom of piston rings.

Diesel ring sticking is said to be due to the formation of lacquer-like deposits, much more resinous in character than carbon. The use of small quantities of special soaps of the type mentioned keeps these resins in solution and prevents their deposition in the ring groove and decreases cylinder wear.

These compounded lubricants have been corrosive to copper lead and cadmium silver bearings, and their use has, therefore, been confined to engines equipped with babbitt bearings. Such significant operating performances have been achieved in engines provided with bearings permitting their use that the petroleum industry has engaged in experimental program in developing noncorrosive types of lubricants having similar outstanding properties but usable as a general purpose oil in heavy duty internal combustion engine service.

The advantages which use has made evident have accelerated the petroleum industry's interest in furthering these developments for aircraft and high output automotive type engines.

Aviation Fuel by High Pressure Hydrogenation Process

Is any high octane value gasoline, as used for aircraft fuel, now produced by the hydrogen process? Will you kindly furnish an outline of the process suitable for this purpose?—L. M. E.

The commercial production of aviation gasoline with a high octane rating is now in operation at the Baton Rouge plant of the Standard Oil Co. of Louisiana. An extended article on the subject, by C. L. Brown and J. A. Tilton, was presented in The Oil and Gas Journal, from which the following is abstracted.

Oil feed and fresh hydrogen are separately compressed to 200 atmospheres, then mixed and passed through a heat exchanger countercurrent to the products of hydrogenation. The oil-gas mixture is heated in a fired coil, thence passed to the catalyst chamber where conversion takes place to the desired products. The reaction products go through a heat exchanger and cooler, thence to a high pressure separator where unreacted hydrogen is disengaged and then recycled by booster compressors. The liquid hydrogenated product is released to lower pressure, stabilized by removing the gaseous fractions lighter than butane and by removing part of the butane. The stabilized product flows to intermediate storage tanks from which it is taken for distillation into aviation fuel distillate and cycle stock. The aviation fuel requires only caustic washing for complete finishing.

The product as obtained from two different feed stocks is described in the table.

HYDROGENATED FUELS FROM TWO FEED STOCKS

	Mirando cracked cycle stock	West Texas cracked cycle stock
Feed stock:		
Gravity, °A.P.I.	26.1	31.8
Sp. gravity, 60° F./60° F.	0.8978	0.8665
Aniline point, ° F.	81	100
Sulfur, per cent	0.06	0.68
Initial boiling point, °F.	211	238
10 per cent off at	416	376
50 per cent off at	465	451
90 per cent off at	520	538
Final boiling point, °F.	572	601
Hydrogenated aviation fuel:		
Gravity, °A.P.I.	62.0	61.8
Per cent at 158° F.	13.5	10.5
Per cent at 203° F.	54.0	57.0
F.B.P., °F.	268	278
Octane number, A.S.T.M. clear	76.8	75.3
+3.0 cc. Pb/gal.	90.8	90.4
Sulfur, per cent	0.001	0.006
Acid heat, °F.	2	2
Color, Saybolt	+30	+30
Reid vapor pressure, lbs./sq. in	7.0	6.1

A 100 octane fuel may be prepared by the addition of 8 cc. tetraethyl lead per gallon to the hydrogenated naphtha. The product has high stability, exceptionally low sulfur, low acid heats, negligible gum content and excellent lead susceptibility.

Reference: C. L. Brown and J. A. Tilton, Production of Aviation Fuel by High Pressure Hydrogenation, The Oil and Gas Journal, March 31, 1938, page 74.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Methylene Chloride

(Dichloromethane)

Use—Foundation solvent for wax.

Form—Colorless liquid.

Formula—CH_2Cl_2.

Secific gravity—1.336.

Melting point— —142° F.

Boiling point—104° F.

Solubility—Water about 2 per cent, fully in alcohol and ether.

LIMITATIONS

Specific gravity, min. .....1.32 at 77° F.

Boiling point, max. ..... 104° F.

Note—The vapors are poisonous.

Weight of 1 Cubic Foot of Any Oil of Known Gravity

Will you kindly furnish a table showing the weight in pounds per cubic foot of the different grades of oils and gasoline?—B. E. R.

The relation between the weight and cubic feet of petroleum liquids is often important when preparing shipments for export. The weight in pounds of 1 cu. ft. of any oil, ranging from 10° A.P.I. gravity to 70° gravity, is given in the table.

WEIGHT IN POUNDS OF 1 CU. FT. OF OIL

Gravity, °A.P.I.—	Lb. per cu. ft.
10	62.425
15	60.365
20	58.305
25	56.501
30	54.697
35	53.102
40	51.507
45	50.086
50	48.666
55	47.396
60	46.126
65	44.980
70	43.835

The data are based on the temperature of the liquid being 60° F. Since the relation is a straight line function, interpolations for other gravities may be made.

Consumption of Electricity, Steam and Water in Refineries

Are the figures available showing what is the reasonable requirement covering electricity, steam and water in refineries? If you have this kind of information we shall appreciate having the figures.—M. O. H.

The required power, steam and electricity, and water for an oil refinery varies with climate and plant construction in addition to the type of refinery. The survey of 44 refineries located in the Southwest has been reported by W. H. Stueve in The Oil and Gas Journal and his data are used here.

The figures shown in the table are the weighted average requirements.

POWER, WATER AND STEAM FOR REFINERIES

Type	Skimming	Cracking	Complete
Number	17	17	10
Bbls./yr. (millions)	16.3	67.6	44.0
Total purchased power, kw. hrs. (millions)	4.89	87.3	103.0
Kwh./bbl.			
Purchased	.30	1.29	2.34
Generated:			
Oil and gas engine	.06	.03	.25
Steam turbine	...	....	90.00
Mech. energy per bbl. oil, kwh.	1.20	1.85	2.12
Bbls. water (50 gal.) per bbl. oil charged	6.6	22.3	24.5
Steam per bbl. oil charged, lbs.	78.0	115.0	250.0

The information in the table represents about 10 per cent of the number of refineries operating during 1935, also 13.3 per cent of the total oil refined in that year, and accounts for 18 per cent of the total electric energy sold to all the oil refineries throughout the United States.

Reference: W. H. Stueve, How Much Electric Power Is Used in Refining, The Oil and Gas Journal, March 31, 1938, page 133.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired, postage should be included.

Mid-Continent Refinery Crude Runs Will Be Reduced During March

Estimated daily refinery crude runs in the Mid-Continent area will be reduced again in March due to a general reduction among plants in this area. With refinery prices slightly stronger in those areas showing increased operations, and with comparatively little gasoline in storage, it is expected that further increases in crude runs will be made at any time the demand warrants. Total crude runs for the month are reported as 493,455 bbls., compared with 494,910 bbls. in February, and compared with 491,935 bbls. one year ago.

Oklahoma

Oklahoma refinery crude runs are estimated to be 141,800 bbls. in March, compared with 143,380 bbls. in February. Operations have been reduced generally throughout the state with the exception of the Barnsdall refinery at Barnsdall, which increased its daily crude runs from 2,800 bbls. in February to 3,500 bbls. this month.

Kansas

Refinary operations in Kansas show a daily increase of 1,675 bbls. of crude run to stills compared with last month. Daily crude runs in February were 121,825 bbls. and in March are reported as 123,500 bbls. Plants reporting increased daily crude runs are the Globe Oil & Refining Co., McPherson, from 10,500 bbls. to 12,500 bbls.; Phillips Petroleum Co., Kansas City, from 15,500 bbls. to 17,000 bbls.; Socony-Vacuum Oil Co., August, from 16,500 bbls. to 17,000 bbls., and the Falcon Refining Co., Great Bend, from 475 bbls. to 600 bbls. in March.

West Texas and Panhandle

Crude runs to stills in the West Texas and Panhandle area have been reduced somewhat at most refineries, although a few refiners increasing their operations bring the March total of crude run to 79,300 bbls., a slight gain over February which was 79,065 bbls.

Mid-Continent Crude Runs

Average Daily (Barrels)

(Advance estimate compiled by The Oil and Gas Journal)

	1937	1938	1939
January	531,535	529,710	503,405
February	541,790	507,985	494,910
March	533,875	491,935	493,455
April	558,385	532,120	.....
May	572,855	527,315	.....
June	593,625	540,005	.....
July	605,640	557,520	.....
August	624,475	554,810	.....
September	625,485	555,695	.....
October	619,210	531,325	.....
November	592,170	524,035	.....
December	544,040	503,530	.....

Operations by Refinery Districts

Daily crude runs

	Mar.	Feb.	Decr.
Arkansas	24,700	23,200	*1,500
East Texas	35,675	40,775	5,100
Kansas	123,500	121,825	*1,675
N. Central Texas	32,130	35,215	3,085
North Louisiana	41,650	36,450	*5,200
Oklahoma	141,800	143,380	1,580
Southwest Texas	14,700	15,000	300
W. Texas Panhandle	79,300	79,065	*235
Total	493,455	494,910	1,455

*Increase.

East Texas

Estimated daily crude runs in the East Texas area will be reduced in March, with a daily total of 35,675 bbls., compared with 40,775 bbls. in February. The plants of the Anglo-American Refining Co. at Gladewater and the Central Refining Co. at Henderson have been dismantled. Both of these plants had been shut down for several months.

North Louisiana and Arkansas

Crude runs in these two areas have been increased considerably. Total estimated daily crude runs for Arkansas are reported as 24,700 bbls. for March, compared with 23,200 bbls. in February. The Root Refining Co., El Dorado, increased its daily runs from 5,000 bbls. to 6,500 bbls. In North Louisiana increased crude runs were reported at the East Texas Refining Co., Sandra; Premier Oil Refining Co. of Texas, Cotton Valley, and at the Atlas Pipe Line Co., Shreveport, which was again placed in operation with a daily throughput of 4,000 bbls.

North Central Texas

North Central Texas refineries have again curtailed operations, the reductions being general over the entire area. Total daily crude runs for March will be 32,130 bbls., compared with 35,215 bbls. in February. The Tydal refinery at Gainesville has been dismantled after being shut down for some time. Bryson Refining Co., Bryson, has increased its capacity from 350 bbls. daily to 600 bbls., and has increased daily crude runs from 200 bbls. in February to 500 bbls. in March.

Southwest Texas

Although the Magnolia Petroleum Co. has increased crude runs at its Luling plant by 950 bbls. daily, reported runs for Southwest Texas show a decline generally. Total estimated crude runs will be 14,700 bbls. in March compared with 15,000 bbls. in February.

Estimated Daily Average Mid-Continent Refinery Crude Runs for March

OKLAHOMA

Company and location—	Daily capacity	Av. dly. runs Mar.	Av. dly. runs Feb.
Anderson-Prichard Ref. Corp., Cyril	7,500	6,500	6,000
Barnsdall Ref. Corp., Barnsdall	5,000	3,500	2,800
Bell Oil & Gas Co., Granfield	5,000	3,000	3,000
Black Gold Ref. Co., Oklahoma City	2,500	(*)	(*)
Champlin Ref. Co., Enid	16,000	15,000	15,000
Cities Service Oil Co., Okmulgee	4,000	(*)	(*)
Cities Service Oil Co., Ponca City	12,000	10,000	9,300
Continental Oil Co., Ponca City	28,000	18,500	18,500
Cosco Oil Co., Wynnewood	2,500	(*)	(*)
Cushing Ref. & Gasoline Co., Blackwell	1,700	(*)	(*)
Cushing Ref. & Gasoline Co., Cushing	4,200	4,000	4,000
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Eason Oil Co., Enid	3,000	(*)	(*)
Globe Oil & Ref. Co., Blackwell	8,000	(*)	(*)
Johnson Oil Ref. Co., Cleveland	6,000	4,500	5,000
Knox Ref. Co., Covington	300	100	100
Mid-Continent Pet. Corp., West Tulsa	35,000	20,000	20,000
Ohio Oil Co., Bristow	5,000	2,000	2,500
Omar Ref. Co., Garber	5,000	2,500	2,500
Phillips Pet. Co., Okmulgee	6,500	5,500	5,830
Peppers Gasoline Co., Oklahoma City	500	350	350
Pure Oil Co., Muskogee	9,000	(*)	(*)
Rock Island Ref. Co., Beckett	6,500	5,000	5,000
Sinclair Ref. Co., Sand Springs	6,000	4,000	4,000
Sun Oil Co., Yale	5,000	2,000	2,000
Sunray Oil Co., Allen	7,000	3,850	4,000
Texas Co., West Tulsa	16,000	10,000	10,000
Tide Water Oil Co., Drumright	12,000	8,000	10,000
Wilcox Ref. Division, Bristow	6,000	4,500	4,500
Total	235,700	141,800	143,380

*Shut down.

KANSAS

Company and location—	Daily capacity	Av. dly. runs Mar.	Av. dly. runs Feb.
Barnsdall Ref. Co., Wichita	5,000	4,500	5,250
Bay Pet. Co., McPherson	4,000	3,500	3,500
Chanute Ref. Co., Chanute	1,000	700	700
Chase Ref. Co., Chase	800	(*)	(*)
Derby Oil Co., Wichita	8,000	5,000	5,500
El Dorado Ref. Co., Eldorado	5,000	3,500	3,500
Falcon Ref. Co., Inc., Great Bend	1,000	600	475
Globe Oil & Ref. Co., McPherson	13,000	12,500	10,500
Kanotex Ref. Co., Arkansas City	12,000	5,500	5,500
National Ref. Co., Coffeyville	8,000	5,000	5,000
Pet. Products Co., Chanute	1,250	1,000	1,000
Phillips Pet. Co., Kansas City	23,000	17,000	15,500
Roper Pet. Co., Parsons	750	500	500
Shallow Water Ref. Co., Scott City	2,500	1,000	1,500
Sinclair Ref. Co., Coffeyville	12,000	8,000	8,000
Sinclair Ref. Co., Argentine	11,000	8,000	8,000
Skelly Oil Co., Eldorado	23,000	20,000	20,000
Socony-Vacuum Oil Co., Inc., Augusta	20,000	17,000	16,500
Standard Oil Co. (Indiana), Neodesha	7,500	7,000	7,200
United Ref. Co., Russell	1,200	700	700
Vickers Pet. Co., Potwin	4,000	2,500	3,000
Total	164,640	123,500	121,825

*Shut down.

NORTH CENTRAL TEXAS

Company and location—	Daily capacity	Av. dly. runs Mar.	Av. dly. runs Feb.
Bryson Pipe Line & Ref. Co., Bryson	2,000	1,000	1,000
Bryson Ref. Co., Inc., Bryson	350	500	200
Coleman Ref. Co., Coleman	1,000	500	400
Continental Oil Co., Wichita Falls	6,000	4,200	4,175
Denver Prod. & Ref. Co., Gainesville	3,000	(*)	500
Exchange Pet. Corp., Albany	800	(*)	(*)
Falls Ref. Co., Wichita Falls	2,500	450	450
Gratex Ref. & Fuel Oil Co., Graham	300	280	260
Gulf Oil Corp., Fort Worth	8,000	5,000	5,600
Hightower Oil & Ref. Corp., Brownwood	750	200	200
Jacksboro Ref. Co., Jacksboro	400	200	200
La Salle Pet. Co., Burkburnett	3,000	900	1,000
Mankins Ref. Co., Mankins	1,500	950	1,000
Magnolia Pet. Co., Fort Worth	7,500	5,000	6,000
Muenster Ref. Co., Muenster	400	200	(*)

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
North Texas Ref. Co., Gainesville	600	250	250
Ohio Oil Co., Fort Worth	5,000	3,800	3,900
Olney Oil & Ref. Co., North Olney	3,500	1,000	1,000
Panhandle Ref. Co., Wichita Falls	4,200	2,500	2,500
Panhandle Ref. Co., Lueders	1,500	900	800
Taylor Ref. Co., Taylor	1,000	600	700
Texas Pacific Coal & Oil Co., Caddo	800	550	600
Tucker Oil Co., Burkburnett	250	150	150
W. T. Waggoner Est., Vernon	4,000	3,000	3,330
Total	64,050	32,130	35,215

*Shut down.

SOUTHWEST TEXAS

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
Border Oil & Ref. Co., Sullivan City	1,000	200	200
Carle Ref. Co., Inc., San Antonio	1,000	(*)	(*)
Eggleston Oil Producers Co., Three Rivers	1,000	700	1,000
Humble Oil & Ref. Co., San Antonio	5,000	3,000	3,500

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
Ina Oil & Ref. Co., Hondo	400	(*)	(*)
Magnolia Pet. Co., Luling	8,000	4,950	4,000
Majestic Ref. Co., Dale	500	100	350
Misko Refineries, Inc., Mirando City	4,500	(*)	(*)
Pettus Oil & Ref. Co., Pettus	1,000	900	800
Phoenix Ref. Co., San Antonio	1,200	600	650
Phoenix Ref. Co., Pettus	900	500	500
Pioneer Oil & Ref. Co., Somerset	2,000	750	1,000
Rado Ref. & Prod. Co., McAllen	800	500	500
Texas Co., San Antonio	5,000	2,500	2,500
Total	32,300	14,700	15,000

*Shut down.

ARKANSAS

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
Berry Asphalt Co., Waterloo	2,000	1,200	1,200
Henry H. Cross, Smackover	6,000	2,500	2,500
Lion Oil Ref. Co., El Dorado	17,000	12,000	12,000
Macmillan Pet. Corp., Norphlet	2,300	2,000	2,000
Root Ref. Co., El Dorado	10,000	6,500	5,000
Stephens Ref. Co., Stephens	700	500	500
Total	38,200	24,700	23,200

NORTH LOUISIANA

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
Arkansas Fuel Oil Co., Bossier City	25,000	20,000	20,000
Atlas Pipe Line Co., Shreveport	12,500	4,000	(*)
Bayou State Oil Corp., Hosston	750	500	500
East Texas Ref. Co., Sandra	7,000	1,700	1,000
Lake-Price Refineries, Inc.	800	450	450
Premier Oil Ref. Co. of Texas, Cotton Valley	3,500	3,000	2,500
Rodessa Oil & Ref. Corp., Cedar Grove	12,000	10,000	10,000
Stanolind Oil & Ref. Co., Superior	5,000	2,000	2,000
Total	62,750	41,650	36,450

*Shut down.

EAST TEXAS

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
Beacon Oil & Ref. Co., Henderson	4,500	(*)	(*)
Clay Ref. Co., Arp	3,500	(*)	(*)
Danciger Refs., Inc., Longview	6,000	(*)	(*)
East Texas Ref. Co., Longview	6,000	3,200	3,500
Hurricane Pet. Corp., Overton	5,000	2,875	2,875
Hurricane Pet. Corp., Arp	3,300	1,900	1,900
Lacy Ref. Co., Kilgore	3,000	2,300	2,400
Magnolia Pet. Co., Corsicana	5,000	4,200	4,500
McMurrey Ref. Co., Tyler	10,000	4,000	3,600
Paluxy Asphalt Co., Talco	5,000	2,000	2,500
Premier Oil Ref. of Texas, Greggtown	4,000	2,900	3,000
Sinclair Ref. Co., Camp Switch	4,000	(*)	(*)
Solvex Refs., Inc., Gladewater	4,500	(*)	(*)
Southport Pet. Co., Kilgore	4,000	2,500	3,000
Talco Asphalt & Ref. Co., Mt. Pleasant	7,500	500	4,500
Texas Co., Dallas	16,000	8,000	8,000
Texas Oil Products Co., Gladewater	3,000	1,300	1,000
Tower Ref. Co., Overton	3,500	(*)	(*)
Utah Ref. Co., Kilgore	2,000	(*)	(*)
Total	105,300	35,675	40,775

*Shut down.

WEST TEXAS AND PANHANDLE

Company and location—	Daily capacity	Av. dly. runs Mar.	Feb.
Aero Gas & Ref. Co., Fort Stockton	350	100	100
Coltex Ref. Co., Colorado	12,500	8,000	7,500
Concho Ref. Co., San Angelo	250	(*)	(*)
Cosden Oil Co., Big Spring	12,500	10,000	10,460
Danciger Refs., Inc., Pampa	6,500	5,500	4,600
Danube Oil Corp., Borger	1,200	700	760
Farmers Ref., Lubbock	500	200	200
Gulf Oil Corp., Sweetwater	7,000	5,500	6,800
Howard County Ref. Co., Big Spring	2,000	550	690
Moutray Oil Co., Hawley	1,400	800	700
Onyx Ref. Corp., Hawley	3,000	1,800	1,400
Panhandle Ref. Co., Kings Mill	2,500	1,200	1,200
Payward Ref. Co., Shamrock	600	500	500
Phillips Pet. Co., Borger	35,000	26,600	26,330
Post Refining Co., Rotan	800	500	575
Shamrock Oil & Gas Corp., Sunray	3,000	2,000	2,000
Stamford Ref. Co., Stamford	450	400	450
Shamrock Oil & Gas Corp., Lefors	1,600	1,000	1,000
Standard Oil Co. of Texas, El Paso	14,000	7,500	7,400
Star Light Ref. Co., Ballinger	1,000	150	150
Texas Co., El Paso	2,000	1,200	1,200
Texas Co., Amarillo	6,000	2,500	2,500
Western Ref. Co., Fort Stockton	1,000	600	650
Wickett Pet. Co., Wickett	3,500	2,000	2,000
Total	122,050	79,300	79,065

*Shut down.

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Oklahoma City Recovery Over 443,000,000 Bbls.

Recovery of crude oil in the Oklahoma City field from the date of its discovery in December, 1928, until January 1, 1939, totaled 443,088,298 bbls., according to W. J. Armstrong, conservation director.

Wilcox sand was the most prolific formation in the pool, total recovery from the sand being 317,031,492 bbls. Lower Simpson horizons were the next most prolific, yielding 102,395,609 bbls. Production from the upper Simpson totaled 1,863,298 bbls.; from Cleveland sand, 1,543,045 bbls.; from Pawhuska sand, 978,403 bbls.; and from miscellaneous formations, 19,276,451 bbls. The latter group included Arbuckle lime, Hoover, Tonkawa, Layton, Prue, detrital, oolitic, Oswego, and Carmichael horizons.

A total of 1,498 wells were drilled during the 10-year period covered by the report. These included 364 wells that were dry initially or else were abandoned when production declined to a nonprofitable amount, 150 gas wells and 984 producing oil wells January 1.

Indian Territory Illuminating Oil Co. was the largest producer in the field with a grand total of 88,725,125 bbls. Phillips Petroleum Co. was the runner-up with 88,017,908 bbls. Other companies producing more than 10,000,000 bbls. were: Carter Oil Co., 37,570,089 bbls.; British American Oil Producing Co., 22,139,246 bbls.; Sinclair Prairie Oil Co., 16,906,606 bbls.; Sunray Oil Co., 15,093,440 bbls.; Anderson-Prichard Oil Corp., 11,372,726 bbls.; and Westgate Oil Co., 10,280,228 bbls.

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- ★ DUST
- ★ HEAT
- ★ COLD

READ THE 5 REASONS WHY THIS MOTOR DOES A BETTER JOB!

HOW IT WORKS: **The Century Type SCT Pump Jack Motor has two important operating features — (1) it has Century specially engineered high starting torque with which to start a tough load and (2) it has high slip, which means the speed pulls down when the load comes on.**

When the load is light on the pump stroke the motor speeds up and stores up useful energy in both the flywheel action of its own armature and the pump jack counter weight. The motor slows down against the maximum power peaks, cushioning the impact and using the stored energy in the armature and counter weight. This results in the following important benefits.

WHAT YOU GET:

1. **Longer Life to Belts, Gears, Chains, Bearings, and other vital parts because of less destructive jolts.**
2. **A high starting torque — of particular value in starting the Pump Jack when the parts are stiff under tough winter conditions.**
3. **Greater starting efficiency—more starting torque with less starting current than is secured from "general purpose" motors.**
4. **Smoother power demand — each pump stroke will cause a smaller variation in current and consequently a smaller drop in line voltage.**
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FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—A Lansing lime gas pool was opened one-half mile northwest of the Prusa oil pool in Barton County. A 5,233-bbl. producer, offsetting a 6,730-bbl. producer completed the previous week, was completed in the Hittle pool, Cowley County. Large producers were brought in in the Silica field, Barton County, and the Bemis field, Ellis County. Another Barton County wildcat flowed 40 bbls. of oil an hour from Topeka lime. A pool was opened in Section 28-28-8, Butler County.

OKLAHOMA—A new oil area north of the St. Louis field, Pottawatomie County, was opened in Section 28-8-4e. A Cromwell sand pool was opened three-fourths of a mile northeast of the Searight field in Seminole County at a well in Section 34-10-6, that flowed 1,000 bbls. of oil in seven and one-half hours while running tubing. An old wildcat north of Norman in Cleveland County was showing oil.

NEW MEXICO—A well in Section 11-22-36, northeast extension to the South Eunice field, Lea County, filled two 1,000-bbl. tanks and pits, flowing at the rate of 400 bbls. an hour, and was estimated good for a daily potential of 9,600 bbls. of oil.

TEXAS—Sun Oil Co. definitely opened a pool in the Bolivar Peninsula area in Galveston County with a well bottomed at 8,009 feet, in the Frio formation, which flowed 146 bbls. in 12½ hours. A new sand, producing distillate, was uncovered in the Goodykoontz area in Harris County. A well producing 42-gravity crude oil was being completed in the Bird Island gas field, offshore from Kleberg County. The recently opened Mellon Creek field, in Refugio County, has two new oil wells good for a combined 700 bbls. initially. La Rosa field in Refugio County was defined on the southwest by a dry hole at 7,021 feet. The Dean pool in Cochran County was extended 1½ miles. The Jordan and Waddell pools of Ector and Crane counties were brought closer together by a new oil well that was rated at 8,200 bbls. a day. Another pool was opened in Jones County by a well that flowed 28½ bbls. per hour. It lies 5 miles west of Stamford. The Griffin pool in Jones County has a 5,000-bbl. well, Bert Fields No. 3 Taylor, farthest northeast well in the pool. A 3,100-foot pay was opened in the Noodle Creek pool in Jones County. New wildcats were started in Callahan and Young counties.

MICHIGAN—A 1,000-bbl. well was completed in the Redding field in Clare County, and four good wells were finished in Bloomingdale and Columbia townships in Van Buren County. The Columbia County completion may be a separate pool opener.

CALIFORNIA—The discovery well in the Arvin field in Kern County tested 2,875 bbls. a day. The Montebello field was extended 1,500 feet easterly. A 4,600-bbl. well was completed on the Kettleman Hills North dome.

ILLINOIS—While completions declined last week, several wells, good for more than 1,000 bbls. initially, were among the new Fayette County completions.

Completions in All Fields

(Week Ending March 11, 1939)

	Oil	Gas	Dry	Total	1939 total comp. to date	1938 total comp. to date
N. Y., Pa., and W. Va.	51	9	3	63	648	1,027
Ohio	1	6	2	9	174	197
Indiana	0	1	5	6	29	22
Kentucky	2	0	5	7	102	146
Illinois	35	0	9	44	677	115
Michigan	10	0	8	18	208	150
Kansas	9	1	7	17	212	386
Oklahoma	19	4	13	36	331	340
Texas:						
North Central Texas	22	0	18	40	420	493
West Texas	24	0	7	31	372	470
Texas Panhandle	3	2	1	6	69	154
East Texas	5	0	0	5	160	508
East Central Texas	2	1	2	5	45	82
East Texas Border	1	0	0	1	19	27
Gulf Coast Texas	25	0	3	28	247	242
Southwest Texas	28	4	16	48	420	403
Total Texas	110	7	47	164	1,752	2,379
North Louisiana	7	2	6	15	93	117
Gulf Coast Louisiana	4	0	4	8	125	104
Total Louisiana	11	2	10	23	218	221
Arkansas	2	0	1	3	51	41
Montana	1	0	0	1	23	8
Wyoming	0	0	0	0	20	36
Colorado	0	0	0	0	2	1
New Mexico	8	0	1	9	122	113
Utah	0	0	0	0	0	0
California	14	0	3	17	180	272
Total United States	273	30	114	417	4,749	5,454
Total previous week	342	32	98	472		
Week ending March 12, 1938	313	37	103	453		

Outstanding Fields—Highlights

(Week Ending March 11, 1939)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	37	39	9	7,589	940	21,897
Wasson-Bennett	8	31	3	9,101	226	12,329
Ector County	10	51	5	6,937	1,604	44,600
Winkler County	0	16	4	1,131	1,770	36,697
Howard-Glasscock	5	21	0	0	1,048	15,896
East Texas	0	12	5	180	26,011	372,798
OKLAHOMA						
St. Louis	6	33	6	1,470	788	27,600
Sac and Fox	5	12	1	188	95	3,100
KANSAS						
Barton County	6	17	2	1,309	408	8,477
Stafford County	3	8	1	582	252	3,317
Rice County	5	17	2	554	1,277	20,858
Russell County	5	18	0	0	1,203	19,049
NEW MEXICO						
Lea County	8	57	6	1,080	2,037	104,770
LA-ARK-TEX						
Rodessa, La-Ark-Tex	1	4	2	890	1,071	65,995
Cotton Valley, La. (deep)	3	7	3	2,460	118	11,945
Jennings, La.	1	5	0	0	140	27,429
MICHIGAN						
Freeman-Redding	3	25	1	508	63	10,897
Van Buren County	6	21	5	3,790	154	16,381
ILLINOIS						
Central Illinois	50	332	35	9,586	2,606	157,715
CALIFORNIA						
Wilmington	3	18	3	1,693	597	84,500
KENTUCKY						
Birk City	2	11	0	0	120	1,533

Illinois and Kentucky

By STAFF CORRESPONDENT

35 Completions and 57 New Operations in Illinois Basin

MATTOON, Ill., Mar. 13.—Only 35 completions were reported from the fields of Illinois in the past week, but 57 new operations were announced including locations, rigs and drilling wells.

In Fayette County, 19 oil wells were completed with a combined initial production of 6,677 bbls. One of the wells, Carter Oil Co. No. 5 Reed, in SW SE SE Section 11-8n-3e, flowed 1,344 bbls. in 24 hours following a 70-quart shot. It was the best well of the week in the state. Two dry holes were drilled in Fayette. In Marion County only 10 new oil wells were reported with a combined initial production of 2,503 bbls. Several of the wells were permitted to produce only three hours and the initial production recorded is the actual output.

Illinois Fields

HIGHLIGHTS OF THE WEEK: Forty-nine of the 102 counties in Illinois are being explored for oil. Acting Governor Stelle is urging the adoption of valuation rate of $10 per acre on undrilled leases and county assessment of taxes on such properties. Independent oil operators declare such action would put them out of business. Production hit a new peak in the past week.

Daily production of new fields 157,715 bbls.; old fields, 5,385 bbls.; total, 163,100 bbls.

Completed oil wells, 35; operations, including locations, rigs and drilling wells, 391.

A 250-bbl. well in Jefferson County; three new oil wells in Clinton that combined 111-bbl. new production, and two producing wells in Wayne County, combining 145 bbls. in initial output supplied the remainder of the successes. Nine dry holes, two in Fayette, two in Clinton, two in Washington and one each in Clay, St. Clair, and Jackson counties, represented the failures.

Illinois oil production in January and February was equal to 36 per cent of the total 1938 production, according to the monthly report of the State Geological Survey.

It was estimated the output for the two months period was 8,576,000 which exceeds by 1,000,000 bbls. the state's total production in 1937.

Four new oil field areas and the successful completion of 200 producing wells featured activity during February. The newly-found producing areas are near the towns of Enterprise and Barnhill in Wayne County, Mattoon in Coles County and Nashville in Washington County. The addition of the latter two counties to the list of producing regions brings to 10 the number of "oil counties" in the Illinois Basin area, exclusive of the oil fields. There are now 28 fields under development as the result of developments in the last three years. There were 2,600 producing wells in the new fields March 1.

In Coles County, F. S. Ingram No. 1 Wilson, C NE SW Section 4-13n-14w, total depth 525 feet, plugged back to 390 feet and shot with 10 quarts, dry and abandoned.

In Fayette County, Carter Oil Co. No. 5 M. Reed, SW SE SE Section 11-8n-3e, Weiler sand at 1,421-51 feet, shot with 70 quarts, flowed 1,344 bbls. of oil and 130,000 cu. ft. of gas through tubing.. Carter No. 5 O. McClain, NW SW SW Section 32-8n-3e, Bethel sand at 1,558-87 feet, shot with 50 quarts, flowed 996 bbls. of oil and 100,000 cu. ft. of gas through tubing. Carter No. 1 F. Ireland, NE SE SE Section 29-8n-3e, Bethel sand at 1,484-1,515 feet, shot with 20 quarts, flowed 160 bbls. of oil and 17,000 cu. ft. of gas. Magnolia Petroleum Co. No. 1 R. M. Watson, SW SE SE Section 33-8n-3e, Weiler sand at 1,488-1,512 feet, shot with 40 quarts, pumped 73 bbls. Carter Oil Co. No. 1 E. Hogge, SW NW SW Section 1-8n-3e, Weiler at 1,509-29 feet, shot with 40 quarts, swabbed 160 bbls. Carter Oil Co. No. 2 Holly, NW SW NE Section 11-8n-8e, stray sand at 1,559-86 feet, shot with 40 quarts, swabbed 368 bbls. through casing, with some gas production. Carter No. 7 R. Larrimore, SE SE SW Section 11-8n-3e, Weiler at 1,422-56 feet, shot with 50 quarts, flowed 402 bbls. of oil and 150,000 cu. ft. of gas through tubing.

Frank DeMayo No. 1 A. C. Barnes roadway, in SE SE SE Section 36-7n-2e, a wildcat, dry and abandoned at 1,650 feet. Carter Oil Co. No. 4 O. McClain, SE NW NW Section 5-7n-3e, Bethel sand at 1,549-60 feet, shot with 70 quarts, flowed 1,200 bbls. of oil and 150,000 cu. ft. of gas through tubing. Carter No. 2 M. Kistler, NE cor. SW NW SW Section 6-7n-3e, Weiler sand at 1,438-80 feet, shot with 60 quarts, swabbed 228 bbls. Dixie Oil Co. No. 2 Sidener, NW SW SE Section 19-7n-3e, Weiler sand at 1,582-96 feet, small shows of oil and water, abandoned. Shell Petroleum Corp. No. 7 Fulton, SW SW NW Section 28-7n-3e, Cypress sand at 1,553-83 feet, shot with 21 quarts, pumped 93 bbls. in 15 hours. Carter No. 3 T. B. Taylor, SE NW SW Section 29-7n-3e, Weiler at 1,531-68 feet, shot with 20 quarts, swabbed 350 bbls. through casing. Mabee Drilling Co. No. 5 Homan, NW SE SE Section 29-7n-3e. Weiler at 1,574-1,607 feet, pumped 175 bbls. Shell Petroleum Corp. No. 6 Fulton, NE SE NE Section 29-7n-3e, Weiler sand at 1,581-91 feet, plugged back to 1,586 feet and shot with 10 quarts, pumped 36 bbls. of oil and 39 bbls. of water. Whisenant and others No. 7 Smith, SE NE NE Section 30-7n-3e, Weiler at 1,541-65 feet, shot with 15 quarts, pumped 80 bbls. Whisenant No. 9 Smith, NW SE NE Section 30-7n-3e, Weiler at 1,547-77 feet, shot with 40 quarts, pumped 120 bbls. Whisenant No. 8 Smith, SW NE NE Section 30-7n-3e, Weiler at 1,554-72 feet, shot with 20 quarts, pumped 90 bbls. Carter Oil Co. No. 6 M. J. Griffith, NE cor. SW SE NE Section 31-7n-3e, Weiler at 1,526-60 feet, shot with 70 quarts, swabbed 525 bbls. through casing. Texas Co. No. 2 Wantland, SW NW SE Section 31-7n-3e, Weiler at 1,565-83 feet, pumped 25 bbls. in three hours, rated a 175-bbl. well. T. W. Lee No. 1 Horner, SE SW NW Section 31-7n-3e Weiler at 1,566-86 feet, pumped 120 bbls. in 12 hours and pumped off. Texas No. 2 Wooten, NE SE SW Section 31-7n-3e, Weiler at 1,527-44 feet, pumped 18 bbls. in three hours, rated a 125-bbl. well.

In Clay County, Kingwood Oil Co. and Gulf Refining Co. No. 1 Davis, a wildcat, NW SE SE Section 26-5n-5e, was dry and abandoned at 2,685 feet. St. Louis lime was topped at 2,618 feet. The test penetrated dry Benoist sand at 2,395-2,437 feet and McClosky lime, topped at 2,513 feet, which had a showing of oil at 2,513-15½ feet.

In Clinton County, Lindsey Brothers and British American Oil Co. No. 1 Boenhoff, NW NW NE Section 34-3n-4w, a wildcat, was dry and abandoned at 1,212

Five McClosky Lime Tests in Western Kentucky Are Dry

OWENSBORO, Ky., Mar. 13.—Five McClosky lime wildcat dry holes were abandoned in western Kentucky in the past week in review. Two of the McClosky failures were in the Owensboro area, drilled by Fred J. Hildt and his associates, and by the Mocarz Oil Co. Hildt and others' test developed sulfur water when the plug was drilled. It was reported Saturday that this test may be deepened to the Corniferous limestone.

Following is the brief summary of an unusually bad week in the western Kentucky fields:

Breckinridge County, Cloverport district: George Trout and others No. 1 Rosie Bryant, rigging up.

Daviess County, Cane Run School district: Wana Oil Co. No. 8 Ethel Chapman, spudding in. Rex Pyramid Oil Co. No. 3 Jessie Litsey, dry hole through McClosky lime. Haynes district: Fordsville Oil Co. No. 6 J. A. Coomes, 10-bbl. well in Jett sand. Glenville district: A. V. Smith and others No. 1 Craven Heirs, 30-bbl. well, natural flow, from Jones sand at 1,340-51 feet; shot with 60 quarts; hole bridged; cleaning out. Owensboro district: Fred J. Hildt and others No. 1 Don Moore, dry hole through McClosky lime, total depth 1,650 feet. Mocarz Oil Co. No. 1 L. E. Whitely, dry hole through McClosky lime, total depth 1,642 feet. Birk City district: Major Oil Co. No. 1 Hobart West, cored McClosky lime which was dry; after setting a week during the flood the well is turning into an oil producer; will be cleaned out and acidized. Utica district: W. Chenault and others No. 1 W. W. Wilson, total depth 1,687 feet, dry in McClosky lime, plugging back to 1,184 feet to test the Jett sand.

Hancock County, Patesville district: Tracy Supply Co. No. 2 W. C. Smith, dry hole through McClosky lime.

Henderson County, Spottsville district: Magnolia Petroleum Co. No. 1 J. E. Casey, deep test, drilling at 4,173 feet.

Hopkins County, Hanson district: Phillips Petroleum Co. No. 1 Ben Parker, location made for a deep test.

Muhlenberg County, Belton district: Phillips Petroleum Co. No. 1 Clarence Boggess (Shearn Coal Co. Mineral), location. Sharodlea Development Co. No. 1 Morris, moving in.

Ohio County, Taffy district: Thrasher & White No. 4 A. C. Crowe, drilling at 320 feet. E. Dehart No. 12 George Early, rigging up. Buford district: C. M. Amsler and others No. 1 W. E. Hinton, dry hole, total depth 830 feet. Oklahoma district: J. W. Tuttle and others No. 4 Gus Russellburg, spudding in.

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feet in the Ste. Genevieve series. It uncovered sulfur water at the bottom, which filled the hole 150 feet.

In the Salem Pool

In Marion County, Salem pool, the Texas Co. No. 9 N. Young, SW SE NE Section 20-2n-2e, had Benoist sand at 1,744-91 feet, flowed 22 bbls. in three hours, and is rated a 135-bbl. well. Texas No. 6 W. Martin, NW SE SE Section 17-2n-2e, Benoist at 1,833-74 feet, flowed 9 bbls. in three hours and then 63 bbls. in 24 hours. Potter and others No. 2 M.&I.R.R., SW cor. NW NE SE Section 16-2n-2e, Bethel at 1,850-82 feet, shot with 28 quarts, pumped 150 bbls.

Texas No. 4 J. Williams, SE cor. NE NE NE Section 9-1n-2e, Benoist at 1,823-63 feet, pumped 196 bbls. Texas No. 15 City of Centralia land, SW NE NW Section 9-1n-2e, Benoist at 1,847-83 feet, flowed 21 bbls. in three hours, rated at 147 bbls. a day. Texas No. 1 W. Carr C, Benoist at 1,742-74 feet, flowed 35 bbls. in three hours, rated at 245 bbls. per day. Texas No. 5 C. E. Bundy, SE SW NE Section 6-1n-2e, Benoist at 1,756-69 feet, Renault at 1,769-76 feet, pumped 210 bbls. Texas No. 4 C. E. Bundy, NW cor. NE NW NE Section 6-1n-2e, Benoist at 1,764-91 feet, pumped 25 bbls. in three hours, rated at 175 bbls. per day. Texas No. 5 L. Hawthorne, SW cor. NE SW SE Section 5-1n-2e, McClosky lime at 1,958-65 feet and 1,967-77 feet, total depth 1,980 feet flowed 84 bbls. in three hours, rated at 588 bbls. per day. Texas No. 3 B. Hawkins, NW NE SW Section 5-1n-2e, Benoist at 1,701-53 feet, flowed 560 bbls. Roberts Brothers No. 7 Pittenger, NE cor. SE NE NE Section 5-1n-2e, Benoist at 1,764-1,836 feet, pumped 225 bbls. Hollingsworth No. 9 Kalkbrenner, in SE SE SW Section 5-1n-2e, McClosky lime at 1,970 feet, flowed 1,120 bbls. Texas No. 2 Bryant Community in SW SW SE Section 4-1n-2e, Benoist at 1,860-91 feet, pumped 24 bbls. in three hours, a 150-bbl. well.

In Clinton County, Shell Petroleum Corp. No. 24 Criley, NW SE NE Section 2-1n-1w, Cypress sand at 1,198-1,222 feet, plugged back to 1,217 feet, pumped 39 bbls. of oil and 3 bbls. of water. Carpenter & Goldberg No. 1 Carter, NE SE NE Section 24-1n-1w, dry and abandoned at 1,370 feet. Shell Petroleum Corp. No. 3A Criley, NW NE NE Section 2-1n-1w, Cypress sand at 1,196-1,230 feet, swabbed 57 bbls. of oil and 13 bbls. of water, and later pumped 30 bbls. of oil and 18 bbls. of water. W. C. McBride, Inc., No. 7 Allison, in SW SE NE Section 12-1n-1w, Benoist at 1,361-83 feet, shot with 15 quarts, pumped 42 bbls. of oil and 40 bbls. of water.

In St. Clair County, Paul Mosebach No. 1 J. Miller, SE SE NW Section 31-1s-7w, top of Devonian lime at 1,486 feet, hole full of water at 1,490-94 feet, Trenton lime at 1,927 feet, total depth 1,962 feet, treated with 1,000 gallons of acid, and abandoned as a failure.

In Jefferson County, Carter Oil Co. No. 1 Alice Boggs, SW SW SE Section 4-1s-2e, Bethel at 1,930-45 feet, shot with 15 quarts, pumped 230 bbls.

In St. Clair County, Badger Oil Co. No. 1 Reichart, NE cor. NW NE Section 3-1s-10w, Trenton lime at 778 feet, total depth 815 feet, plugged back to 811 feet, acidized with 1,000 gallons, pumped 3 bbls. of oil in 24 hours.

In Wayne County, Roche & Voyles No. 2 McPherson, C N half SE NE Section 4-2s-7e, pay at 3,258-70 feet, flowed 125 bbls. in one and one-half hours, rated a 1,200-bbl. well. New Penn Development Corp. No. 1 J. L. Wagner, is a 20-bbl. pumper at a total depth of 3,441 feet. It was acidized with 1,000 and then with 3,500 gallons at 3,432-36 feet. There were no showings in sands above the Roseclaire.

In Washington County, Jett & Skidmore No. 1 Hoelscher, SW NE SE Section 25-2s-5w, Fredonia lime at 1,265 feet, total depth 1,331 feet, dry and abandoned. J. L. Henderson, Jr., No. 1 Hornegger, NE NE NW Section 8-3s-1w, dry and abandoned in Fredonia lime topped at 1,628 feet, total depth 1,713 feet.

In Jackson County, Ben Banner No. 1 Dean, NE NE SE Section 33-7s-3w, dry and abandoned in Ste. Genevieve lime topped at 1,290 feet, total depth 1,380 feet.

New Wildcat Operations

In Macon County, Snake Hill Development Co. No. 1 John Dipper, 450 feet from north and 500 feet from east lines of SE NW Section 17-16n-2e, set 10¾-inch casing at 100 feet and drilling below 1,185 feet.

In Jasper County, Thompson Drilling Co. No. 1, SW SE SW Section 7-8n-10e, moving in rotary.

In Montgomery County, Independent Producing & Refining Co. No. 1 Nieman, NW cor. SE SW Section 29-8n-5w, rigging up machine.

In Jasper County, Kingwood Oil Co. and Bur-Kan Oil Co. No. 1 Harrison, C W half SW SW Section 2-7n-10e, rig up.

In Marion County, Kingwood Oil Co. No. 1 Loomis, NE NE NE Section 31-3n-2e, location.

In Wayne County, Roche & Voyles No. 1 Jewell, C E half SW SE Section 3-2s-7e, spudded. Ivan Allen No. 1 Horton, C SE SE SE Section 12-3s-9e, spudded and shut down.

In Gallatin County, J. C. Miller and others No. 1 Big Barn B, 1,320 feet from north and 400 feet from west lines of SE quarter Section 11-8s-10e, driving 10-inch pipe at 100 feet. J. C. Miller and others No. 1 Big Barn A, C SW SW NE Section 2-8s-10e, driving 10-inch pipe at 50 feet.

In Saline County, Kingwood Oil Co. No. 1 McIntyre, NW cor. Section 25-9s-7e, rig up.

In Williamson County, Ray Shipman and others No. 1 Chamness, 175 feet from west and 360 feet from north lines SW SW Section 21-9s-2e, rig up.

Corrected location in Gallatin County: Dillon and others No. 1 Carl Frohoch, C SE SE SE Section 4-10s-8e, spudded.

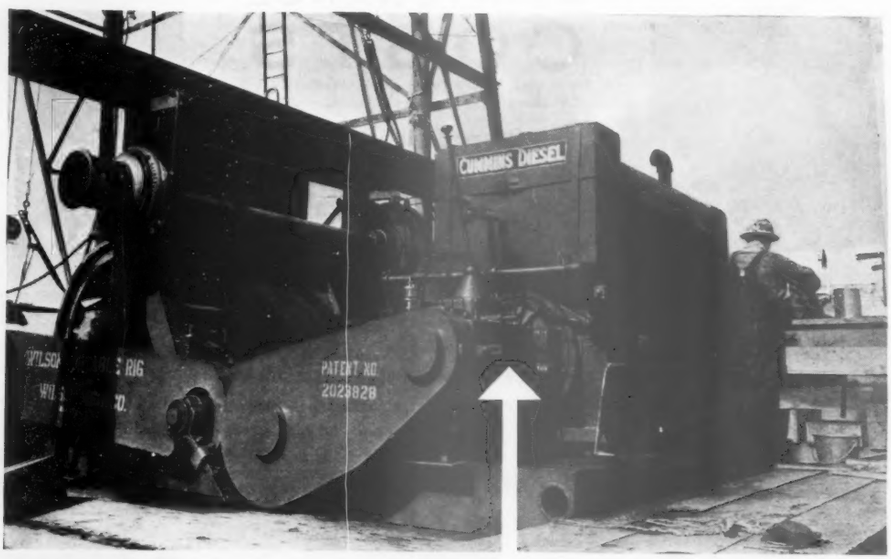
CENTRAL OHIO

FINDLAY, Ohio, Mar. 13. — Muskingum County yielded an 8,000,000 cu. ft. producer for the outstanding completion of the week, in the Central Ohio area. Pure Oil Co. struck the pay 17 feet in the Clinton sand in No. 2 Ernest Eppler, SW Section 17, Brush Creek Township. Sand lay at 3,976-93 feet; total depth 3,993 feet.

In Holmes County, Harding Township, Section 16, Lydic Oil & Gas Co. abandoned No. 2 William I. Straits at 785 feet, after finding only a small gas showing in the Berea.

In Knox County, Howard Township, H. E. Perkins No. 1 J. R. Drake, Lot 20, third quarter, had an open flow of 150,000 cu. ft. of gas in the Clinton sand at 2,554-69 feet and 2,689-2,704 feet.

In Lawrence County, Union Township, Ohio Fuel Gas Co. No. 1 M. O. Gardiner, Section 17, is a gas



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well with an open flow of 150,000 cu. ft. from the shale. It had been shot with 3,000 pounds of gelatin at 2,579-3,019 feet.

In Lorain County, Lagrange Township, East Ohio Gas Co. No. 1 Lewis Runals, Lot 62, found the Clinton sand broken and dry at 2,295-2,306 feet; total depth 2,416 feet.

In Medina County, Spencer Township, East Ohio Gas Co. No. 1 H. C. Hange, Section 10, is a gas well with an open flow of 440,000 cu. ft. from Clinton sand at 2,485-95 feet.

In Noble County, Wayne Township, Eugene Ward No. 1 Joseph L. Williams, Section 22, is a small Berea sand gas well at 1,358-61 feet.

Brown County, in southwestern Ohio, is being given another wildcat test. Col. J. P. Kappas and others are drilling on the George Moore tract in Perry Township, 1½ miles south of Fayettesville. Shows of gas were found in the Utica shale. Top of the Trenton was at 843 feet, and is being drilled at 200 feet. The test is heading for the St. Peter sand.

In Green County, D. R. Buchanan and others are drilling at 1,400 feet in the test on the Steel Progue tract in Ceasers Creek Township. Top of the Trenton was found at 1,050 feet with a very small showing of oil at 1,124 feet and a small showing of gas at 1,317 feet.

McAfee and others No. 1 Lucy Damon, Section 24, Harrison Township, Henry County, was shut down testing an oil showing at 2,480-81 feet.

EASTERN KENTUCKY

ASHLAND, Ky., Mar. 13.—Drilling shows a slight increase in one or two of the eastern Kentucky districts this week but the total is still far under that of a year ago.

Wireman Brothers have drilled in No. 5 on the John A. Rogers land and No. 1 on the Albert Stewart land in Powell County, but production data is not yet available.

In the South Fork district of Powell County Less Jones and others are down 600 feet in No. 1 Maggie Oaks at Pilot. Moore & Rogers were drilling at 500 feet in No. 1 Ollie Rogers land at Rogers Chapel. Wireman brothers were below 450 feet in No. 5 Albert Stewart.

In the Ida May district of Lee County, Heath & Co. are rigging up No. 6 S. W. Steele on Duck Fork.

In Knott County, Inland Gas Corp. was drilling at 1,033 feet, in sand, in No. 206 on the Zada Hutcherson land on the Right Fork of Troublesome Creek. The same firm was drilling at 961 feet in No. 207 on the Curtis Pigman land, also on the Right Fork of Troublesome Creek.

Kentucky-West Virginia Gas Co. is building rig for No. 579 Sherwood Osborne on Little Doty Branch and is rigging up No. 580 H. H. Smith on Caney Fork.

In Floyd County, Kentucky-West Virginia Gas Co. is down 150 feet, in slate, in No. 5250 on the William Crider land on Johns Creek.

In Martin County the Kentucky-West Virginia Gas Co. is drilling at 1,000 feet in No. 5251 on the C. W. Preece land on Coldwater Fork. The same firm is moving in at No. 566, Samuel Dillion land on Ivy Creek, preparatory to deepen. Operations are at a standstill in other eastern Kentucky districts.

N. Y.-Penna. Gas Fields

COUDERSPORT, Pa., Mar. 13.—The third well reached the Oriskany sand in the new Sharon Township, Potter County, area this week and encountered salt water. While this is the first unsuccessful well to be drilled in the field it is not considered indicative of limiting the producing area for it was drilled on what formation depths have proven to be a fault. This well reached the Onondaga limestone at a subsea depth of 2,895 feet against 2,596 feet for the discovery well, 299 feet lower. Faults parallel to axes are common to these fields and it is believed that additional production will be developed both north and south of this fault.

This well, like the discovery, was drilled by the Belmont Quadrangle Drilling Co. This well was drilled through the Tully limestone at 4,269-4,322 feet, topped the Onondaga at 4,866 feet and the Oriskany at 4,920 feet. Salt water, which was bailed at the rate of 2½ bailers an hour, was encountered 4 feet in the sand. Surface elevation of this test was 2,895 feet.

Another well in this area reached the Onondaga last week and shut down preparatory to running casing. This was the G. L. Cabot, Inc. test on the Plank School farm which reached the Onondaga at 4,669 feet and is setting casing at 4,686 feet. Top of the Tully was 4,149 feet.

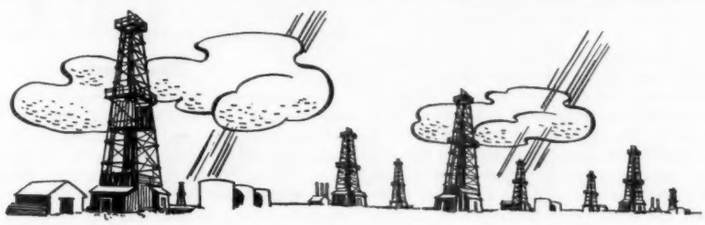
There are six other operations currently active in this township. Empire Producing Co. is drilling at 4,090 feet on the F. Dickerson farm, New Penn Development Co., at 3,197 feet on the Gorton-Kemp farm; Sylvania Corp., at 3,180 feet on the Elmer Kemp farm; Belmont Quadrangle Drilling Co., at 2,910 feet on the Wolcott No. 2, and G. L. Cabot, Inc., at 615 feet on the Reva Kemp farm. In addition New Penn Development Co. set 533 feet of 9⅝-inch O.D. surface casing on the Dunshie farm and is moving in on the E. J. Davis farm.

Most active Potter County area outside Sharon Township is in Bingham Township. Here New York State Natural Gas Co. is drilling at 4,305 feet on the F. McCarthy farm; Sylvania Corp., at 2,600 feet on the Harrison No. 2, and New York State Natural Gas Co., at 515 feet on the Ladd Estate farm and Updegraff is spudding in on the Norman Patterson farm. G. L. Cabot, Inc. is drilling at 4,980 feet on the William Cobb farm, Allegany Township; Evjen, Harris and others, at 3,010 feet on the A. R. Mitchell farm, Sweden Township, and Cunningham Natural Gas Co., at 610 feet on the F. Markey farm, Oswayo Township.

The Penn Bradford Oil Co. wildcat on Warrant 5574, in Hamilton Township, McKean County, resumed drilling during the past week after several weeks' shutdown. It was reported drilling at 4,128 feet.

One well was completed in New York last week. This was the Cunningham Natural Gas Co. No. 2 on the William Shear farm which found salt water in the Oriskany and was abandoned at 4,955 feet. Top of the Oriskany was 2 feet higher. This well was in Willing Township, Allegany County, where the Empire Producing Co. drilled into the Oriskany with evidence of a good well. This well, the No. 2 on ths Floyd Wilson, reached the Oriskany at 4,920 feet, got the first gas at 4,923 feet and will probably be completed at 4,924 feet, its present depth. It had an initial open flow of 9,000,000 cu. ft. with a rock pressure of 1,450 pounds.

(Continued on Page 94)



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THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

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We Bank on OIL 1939

Eastern Field Report

By STAFF CORRESPONDENT

First Gas in Oriskany Sand on Chestnut Ridge Structure

PITTSBURGH, Pa., Mar. 13.—A discovery of gas in the Oriskany sand on Chestnut Ridge, Fayette County, Pennsylvania, was made during the past week, which may be of great importance in the development of this structure. In North Union Township, Wasson & Co. and others completed the test on the J. H. Sorg 23 acres at 7,119 feet as a gas well gauging 2,500,000 cu. ft. a day.

In this test, starting at a surface elevation of 2,585 feet, the cherty zone of the Onondaga limestone was topped at 6,925 feet, and gas pays in that formation were struck until a total volume of 743,000 cu. ft. a day was gauged in the shaly break at the bottom of this member. This break occurred in the run 7,073-76 and continued until at 7,109 feet, there was a conglomerate of chert, lime and sand. At 7,112 feet there was additional gas which continued until 7,117 feet at which time the gas was blowing out sand crystals, and the heavy tools began sticking. Lighter tools were run in the hole, and an additional 2 feet of hole was made but without increasing the gas volume, and the sand appearing more impure. The best sand appeared at about 7,112 feet, and at 7,119 feet the formation had again hardened.

In the three previous gas wells completed on this structure, all of the gas was found in the Onondaga lime, but except in the rotary test on the Piedmont Coal Co., the Oriskany was not reached. In this test, the Oriskany was not a reservoir. The two other tests were forced to stop drilling before reaching the Oriskany due to the gas pressure. With the discovery of gas in the Oriskany sand, it is possible that this is the reservoir which is feeding into the fissures in the Onondaga.

About 3 miles southwest along this ridge in South Union Township the New Penn Development Co., William Snee and others are drilling at 7,040 feet in the test on the Indian Creek Coal & Coke Co. and have a volume of 900,000 cu. ft. a day at present, having lost some since the last large pay. This is 115 feet in the Onondaga and it will be drilled into the Oriskany unless stopped by additional volume and pressure.

In Lorain County, Ohio, Section 3, Pittsfield Township, R. E. Cain completed a test on the Vincent Zolka farm in the Clinton sand which after a shot produced 50 bbls. of oil the first day from a depth of 2,193 feet.

In Washington County, H. E. Dixon and others completed a test on the Otto H. Johnson farm on Sacketts Run in Section 22, Ludlow Township, in the Berea grit at 1,892 feet. After shot it produced one-half barrel the first day along with 70,000 cu. ft. of gas.

SOUTHWEST PENNSYLVANIA

In Beaver County, Pennsylvania, G. B. Dawson drilled a test on the Thomas Mansfield farm in Hanover Township through the Berea grit and it was dry.

In Greene County, Brummage and others completed deepening the test on the S. G. Durr farm in Monongahela Township at 3,005 feet. The Elizabeth sand was at 2,998 feet, with 850,000 cu. ft. of gas per day at 3,003 feet.

In Morris Township, Greene County, C. H. McVey and others have reached 2,955 feet on the Elmas Laughman farm with the Fifty-foot sand at 2,905-44 feet and 212,000 cu. ft. of gas at 2,909-17 feet. Here O. I. Dille and others have reached 1,605 feet in the second test on the Ellsworth Beckham farm.

In Richhill Township, Greene County, Burleigh Wright and others were drilling on the Strawn heirs farm at 115 feet. In Franklin Township, J. B. Myers and others were drilling at 1,800 feet on the Sallie Morris farm.

In Washington County, Penn Ohio Oil & Gas Co. is rigging up to deepen on the John Russell farm in Amwell Township from the Salt sand at 1,779 feet. In this township, A. V. Lewis and others are rigging up the second test on the William Dodds farm.

In Hopewell Township, Washington County, McFadden and others are drilling at 1,245 feet on the J. W. Reed farm. R. M. Duden and others are shut down at 1,800 feet on the Ray Scarum farm

Deep Tests

In Armstrong County, the Peoples Natural Gas Co. has reached 1,860 feet on the Lowry Martin farm in Wayne Township. On Chestnut Ridge in Springhill Township, Fayette County, the L. J. Houze Convex Glass Co. is still fishing on the Paul Dunham farm. All but about 200 feet of line has been recovered and the hole is clear to that point.

WEST VIRGINIA

In Roane County, West Virginia, Peoples National Bank of Parkersburg completed the test on the O. P. Ball farm in Curtis district in the Salt sand at 1,806 feet and it is showing for 10 bbls. a day.

In Calhoun County, two gas wells were completed. In Sherman district, H. S. Adams heirs completed the second test on the F. M. Wilmoth heirs farm as a gas well gauging 212,000 cu. ft. per day, total depth 2,244 feet.

In Calhoun County, two gas wells were completed. In Sherman district, H. S. Adams heirs completed the second test on the F. M. Wilmoth heirs farm as a gas well gauging 212,000 cu. ft. per day, total depth 2,244 feet.

In Lee district, Calhoun County, Everett Starcher completed No. 3 C. C. Starcher as a gas well at 2,285 feet. Gas in the Big Injun, 2,200-2,210 feet, gauged 55,000 cu. ft. per day.

In Gilmer County, McKnight & Whiting completed a 2,000,000-foot gas well on the A. B. and J. D. Vannoy farm in DeKalb district at 1,976 feet. In this district, L. E. and W. H. Mossor completed a test on the S. S. Riddle farm in the Big Injun sand, total depth 2,108 feet, as a gas well gauging 1,000,000 cu. ft. a day.

In Lincoln County, R. H. Adkins completed a 160,000-foot gasser on the T. C. Collins farm in Carroll district at 2,279 feet.

Oriskany Gas Field

Two fair wells were completed in the Oriskany gas field in Kanawha County, West Virginia, by the United Fuel Gas Co. In Poca district, this company completed No. 4768 on the John Wines farm in the Oriskany, total depth 5,019 feet, with a final gauge of 11,039,000 cu. ft. a day. In the same district it completed No. 4812 on the J. A. Wines and others lease in the Oriskany sand at 4,975 feet and it gauged 11,681,000 cu. ft. a day.

Outside Deep Tests

In Jackson County, Joe Rubin, N. P. Johnston and others are drilling past 4,200 feet in the test on the D. P. Curry farm 2 miles west of Lockhart in Ravenswood district and expect to reach the Lower Devonian within the week.

In Ripley district, Jackson County, the Columbian Carbon Co. is drilling at 1,838 feet in the deep test on the G. W. Lathey farm. In this district the extension of the Kanawha County Oriskany gas field, Everett Starcher and others are drilling at 4,200 feet in the test on the R. R. Boggess farm, with part material for a test on the Grady F. Boggess farm.

In Pleasants County, the Columbian Carbon Co. is still fishing for the reamer lug on the Giles Hammat farm in Grant district and at a depth of 4,825 feet.

New Work

In Cabell County, V. C. Meabon is rigging up on the C. and H. Edgar farm in Guyandotte district. In Grant district, Big Two-Mile Gas Co. is drilling at 1,875 feet in the W. W. Conner test; in McComas district, R. H. Adkins is drilling at 1,000 feet in the B. L. Perry test; West Virginia Gas Corp., drilling at 2,130 feet on the Claude Keyser farm; R. H. Adkins, trustee, drilling at 1,700 feet in the U. G. Bledsoe test; Wade Gas Co., at 2,590 feet on the Nelson Holton heirs land.

In Calhoun County, Everett Starcher is down 805 feet in No. 2 Slider in Lee district. In Sherman district, South Penn Oil Co. at 2,000 feet in No. 4 Henry Brannon; Gunn and others at 1,780 feet in No. 1 Luerna Barr; W. H. Bickel shut down testing at 1,918 feet in No. 2 Luerna Barr.

In Clay County, Elk River Gas Co. is fishing at 1,842 feet in the J. S. Brown test in Pleasant district; Thompson Gas Co. drilling at 1,150 feet and 1,024 feet in the Thompson Land & Coal Co. Nos. 11 and 12, respectively.

In Gilmer County, Hope Natural Gas Co. is deepening No. 1 M. D. Attman, in Troy district, an old Injun sand gas well, to the Berea and drilling at 2,070 feet. In Glenville district, Pittsburgh & West Virginia Gas Co. is down 300 feet in a second test on the Alexander Lyons farm. In DeKalb district, Paul K. Weekley spudded in on the Stern & Turner farm and shut down.

In Kanawha County, Ten Mile Oil & Gas Co. is drilling at 1,675 feet in No. 20 Margaret Y. Dickinson, in Malden district.

In Lincoln County, the Big Laurel Gas Co. started drilling on the Calloway Plumley farm in Union district. In this district, Woodall Gas Co. is down 2,900 feet in the second test on the Ambrose Adkins farm. In Duval district, Cambridge Gas Co. is drilling at 2,810 feet in No. 2 Edward Davis, Sr., Heirs; Kanawha Gas & Utilities Co. at 2,990 feet in No. 2 Edward Davis. In Jefferson district, R. H. Adkins is down 1,910 feet in the Osa Lovejoy test.

In Putnam County, Smith & Ellison are fishing for tools at 1,300 feet on the Simms farm in Scott district. The Teavee Oil & Gas Co. is rigging up on the W. E. Irwin farm, same district.

In Pleasants County, R. E. Bills was drilling on the Dennis Baker Heirs in Jefferson district at 300 feet. In Ritchie County, A. R. Kelley made a location on the Walter Shields farm in Grant district, elevation 813.8 feet. Here the Burge Drilling Co. has a rig standing for the Clarence Lewis test. In Roane County, C. W. Hickman made a location on the Anderson Harold and others farm in Geary district, elevation 778.86 feet, on the waters of Trace Fork.

In Wayne County, Fraley Gas Co. is rigging up the test on the V. Adkinson Dickerson farm in Union district. Here United Fuel Gas Co. has started drilling No. 4829 J. R. Hussey and R. H. Adkins and others are drilling at 1,900 feet in the C. Cyrus test.

In Boone County, Owens Illinois Glass Co. is drilling at 4,102 feet in No. 15 Peytonia Coal Land Co. on Sherman district and in Peytonia district at 4,982 feet in No. 13 Bull Creek Coal & Land Co. In Nicholas County, Hope Gas Co. is drilling at 748 feet in No. 7822 C. & H. Corp. in Jefferson district.

In Mingo County, W. E. Burchett is shut down at 3,808 feet on the B. F. Meade farm in Kermit district and will shoot. In Harvey district, the Red Jacket Coal Co. is testing after a shot in its No. 6 fee at 3,305 feet.

Fig. 511

Fig. 524

How DO YOU BORE A HOLE?

That's right—you choose the best tool for that particular job. The same applies to oil-well drilling.

If cable tools are used where rotary equipment would do a better job . . . . . .

Or if rotary equipment is used where cable tools would be better . . . . . .

Or if either system is followed through the whole job, where a combination of both would be more economical . . . then NOBODY'S INTEREST IS SERVED.

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SPANG CABLE TOOLS

The HIGHER STANDARD

Oklahoma Operations

By
DAL DALRYMPLE

Cromwell Strike in Searight Area Has Large Initial Flow

The Searight field in Seminole County, Oklahoma, was extended three-fourths mile northeast and given a new producing zone at H. S. Moss and others No. 1 Leachman, C N half SE NE Section 34-10-6.

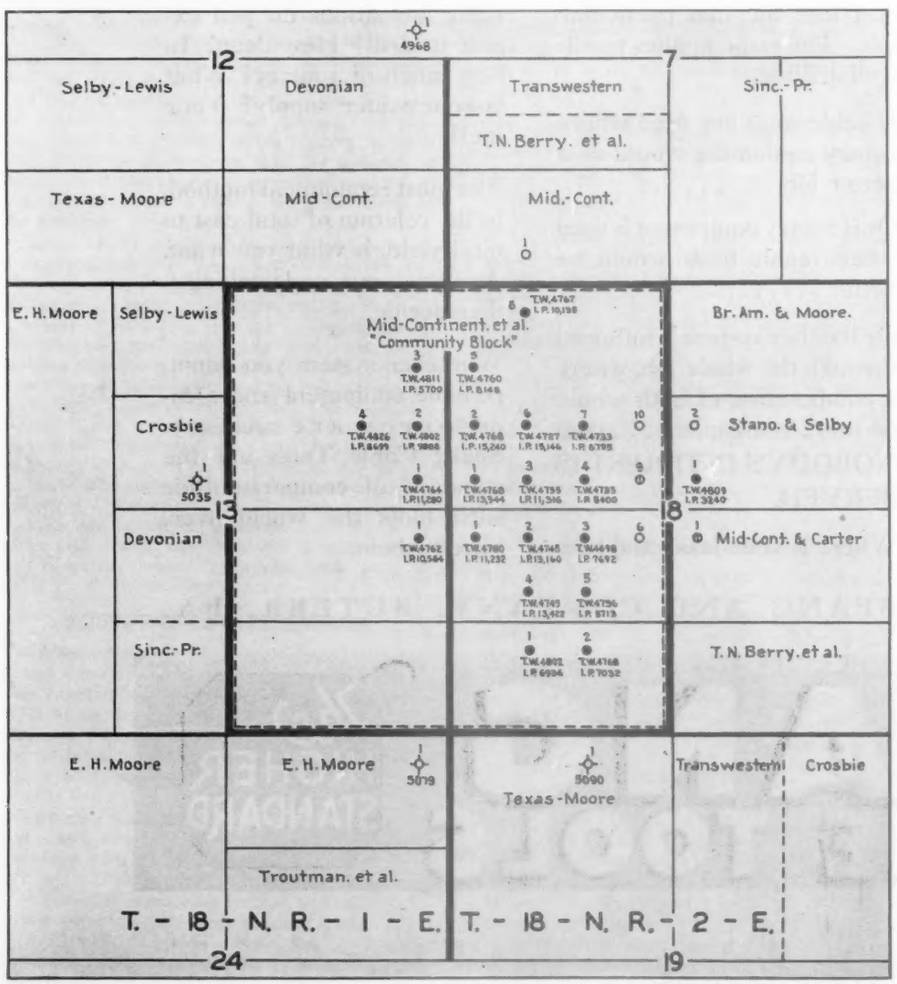
It topped Cromwell sand at 3,798 feet, had Wilcox sand at 4,625 feet and a trace of water showing at 4,630 feet, total depth. It was plugged back to 4,264 feet, casing was perforated in Cromwell sand zone at 3,812-30 feet, and it flowed 1,000 bbls. of oil in 7½ hours while tubing was being run. It was reported to have flowed 1,545 bbls. of oil through tubing choke in 18 hours and was shut in for connections being made by Tide Water Pipe Line Co. Classed as a pool opener, it would be allowed to produce 15,000 bbls. of unprorated oil, after which it would be prorated to 100 bbls. of oil daily. Offset locations are owned by H. S. Moss, Bishop Oil Co. and Magnolia Petroleum Co.

Nels Burton and others No. 1 Norman (Hirsch), NW NW NE Section 17-9-2w, an old Cleveland County wildcat that was shut down for nearly a year at 7,695 feet, total depth, recently was reworked and has produced about 1,000 bbls. of oil in recent tests. Casing was perforated at 7,540-50 feet, it was acidized and pumped an estimated 150 to 200 bbls. of oil a day, with an equal amount of acid water and sediment. Operators were expected to reacidize and test again. Location is north of Norman.

Wildcat Development

Wood Oil Co. No. 1 Peters, SW SE NW Section 28-8-4e, wildcat north of the St. Louis field in Pottawatomie County, perforated casing at 4,085-4,153½ feet, was acidized with 6,500 gallons in two stages and pumped 70 bbls. of oil and 28 bbls. of water in 24 hours from Misener sand and Hunton lime pay, completed. It previously had swabbed 130 bbls. of oil in 24 hours. Misener sand was topped at 4,090 feet, Hunton lime 4,111 feet. It found Wilcox sand at 4,540 feet, was bottomed at 4,560 feet, with water showing, and was plugged back.

Burke-Greis Oil Co. No. 1 Vanderslice, NE NE SE Section 30-14-7, wildcat in the southwestern corner of Creek County, was building rig.



Midcontinent Map Co., Tulsa

Three wells are drilling outside the community block in the Ramsey pool, Payne County. Top of Wilcox sand and initial potential of wells already completed are shown

Indian Territory Illuminating Oil Co. No. 1 Palmer, NE SE NW Section 5-10-9, outpost in the Palmer area, Okfuskee County, found Senora sand at 1,828 feet and was dry and abandoned at 1,942 feet, total depth.

Smythe & O'Mara No. 1 State, C SE SW Section 16-25-4w, wildcat southwest of Lamont in Grant County, was location for a 6,250-foot test.

R. O. Ray No. 1 Madison, NW NW SW Section 11-2s-16w, wildcat northeast of Hollister in Tillman County, was location for a 3,500-foot test.

Wichita Oils, Inc., No. 1 Mace, SW cor. Section 11-5-15w, wildcat north of Saddle Mountain in eastern Kiowa County, was drilling below 120 feet. A showing of oil was reported at 100-115 feet.

Two abandonments were reported in Cherokee County, eastern Oklahoma. Macon & Heydrick No. 1 Kennedy, SW SE SE Section 8-15-22, was dry and abandoned at 723 feet, total depth. Petroleum Grubstakers Co. No. 1 Cookson, SE SW NW NW Section 33-15-22, was abandoned at 350 feet, total depth.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending March 11, and for the preceding week, was as follows:

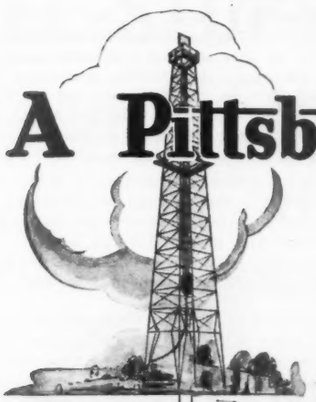
	Barrels	
	Mar. 11	Mar. 4
Allen	5,675	5,575
Billings	4,775	5,075
Burbank	7,750	7,650
South Burbank	9,325	9,200
Balance Osage	18,400	18,500
Blackwell district	3,775	3,825
Bristow-Slick	6,950	6,775
Chandler	1,700	1,725
Crescent	3,425	3,450
Cromwell	3,050	3,025
Cushing-Shamrock	9,975	10,250
Duncan district	4,075	4,025
Edmond	4,825	4,650
Fish	2,425	2,500
Fitts	30,200	30,525
Jesse	2,650	2,350
Graham-Fox	4,350	4,350
Gray	750	750
Healdton	8,875	8,850
Hewitt	3,650	3,625
Keokuk	3,700	3,750
Konawa	1,050	1,075
Lucien	7,650	7,950
Moore	4,250	3,625
Oklahoma City	115,900	110,350
Olympic	3,350	3,450
Ramsey	3,250	3,225
Sasakwa	1,300	1,275
Sholem-Alechem	2,275	2,325
Seminole district:		
Bowlegs	7,775	7,850
Carr City	3,025	3,000
Dora	4,325	4,425
Earlsboro	4,475	4,425
South Earlsboro	550	525
East Earlsboro	4,125	4,175
Little River	6,700	6,750
East Little River	725	700
Maud	1,075	1,050
Mission	1,375	1,400
Seminole	7,550	7,625
East Seminole	1,450	1,425
Searight	2,250	2,275
Total Seminole	45,400	45,625
St. Louis-Pearson	27,600	27,750
Tatums	1,600	1,575
Tonkawa-Garber-Thomas	3,950	3,975
Wewoka	2,075	2,050
Yale-Jennings	3,575	3,525
Other pools	82,750	83,000
Total Oklahoma	446,275	441,200

Pottawatomie County

Helmerich & Payne, Inc., No. 2 Billington, SW SE SW Section 31-7-5, St. Louis field, Pottawatomie County, found dolomite at 4,130 feet, was treated with 3,000 gallons of acid and completed at 4,250 feet, total depth, for 666 bbls. of oil in 24 hours.

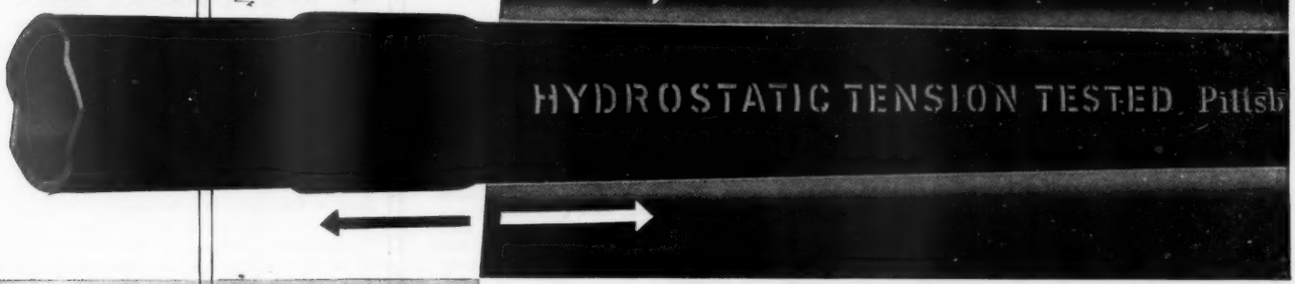
J. F. Smith and others No. 2 Tarter, NE NW SW Section 32-7-5, had dolomite at 3,992 feet, was bottomed at 4,021 feet, acidized with 3,000 gallons and produced 200 bbls. of oil daily.

C. G. Giblin and others No. 1-A Walker, NE SE SW Section 7-7-4, found Hunton lime at 3,890 feet, total



A Pittsburgh INNOVATION

TENSION TESTING OF CASING



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Every joint of casing in the hole is *in tension.* Conventional hydrostatic testing is *under compression.*

Pittsburgh Steel Company's new method of Hydrostatic Tension Testing, is the one correct and valid method of proving the sound and leakproof character of the casing joints to meet field conditions. As present pipe storage yard stocks are exhausted they will be replaced entirely with tension tested casing.

Hydrostatic Tension Testing is exclusively "Pittsburgh." Patents applied for. Further information upon request.

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Double Seal—Acme Thread

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No matter what method is used in transferring these liquid gases, there is a Viking built for the purpose.

Fig. 57 Special—Hand drive Butane-Propane pump.

Fig. 100—Complete motorized Butane-Propane pump.

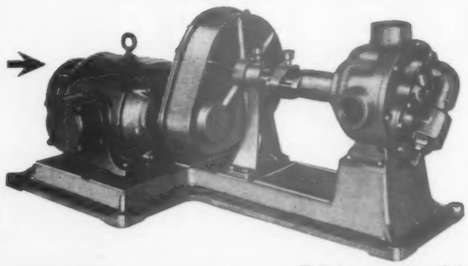
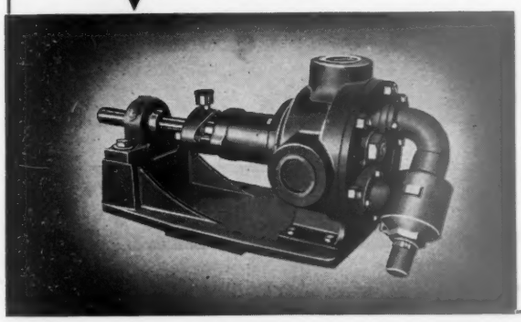


Fig. 118—Truck Mounting Butane-Propane pump.



If it is a matter of hand transfer with an equalizer in the line, there is a special Hand Drive pump. If it is transferring to or from truck tank, there is a truck mounting pump built to derive power from truck transmission. If a complete motorized unit can be used, there is also a Viking for that purpose.

Send for complete specifications on any of the above pumps today.

VIKING PUMP COMPANY

CEDAR FALLS, IOWA

PAGE FENCE

HOW HIGH IS A 6-FOOT FENCE?

Of course a 6-foot fence is 6 feet high, but the point is that PAGE service will help you select the proper fence whether it be 4 or 14 feet high. PAGE—America's first wire fence since 1883—alone offers you a choice of five quality fence metals to fit all atmospheric conditions and an exclusive wing-channel post designed for greater utility. One of our 92 Association Members is nearby to render skilled, courteous service. Secure his name and free literature—write PAGE FENCE ASSOCIATION, Bridgeport, Conn.

depth 3,940 feet, acidized with 1,000 gallons, and had initial yield of 25 bbls. of oil.

Helmerich & Payne, Inc., No. 3 Wilsie, NW SW SE Section 7-7-4, had initial daily production of 136 bbls. of oil after acidizing with 5,000 gallons. Hunton lime was topped at 3,835 feet, total depth 3,859 feet.

Gulf Oil Corp. No. 3 Johnson, SE SE NW Section 29-7-5, topped dolomite at 4,037 feet, total depth 4,130 feet, was treated with 5,000 gallons of acid and produced 268 bbls. of oil in 24 hours.

Taber, Coleman & Hissom No. 1 Miller, SE SE SE Section 29-7-5, had dolomite at 4,070 feet, was bottomed at 4,135 feet, acidized with 5,000 gallons and had initial daily yield of 175 bbls. of oil.

Burns and others No. 1 Dean, NE SE SE Section 13-6-3e, was dry and abandoned at 3,443 feet, total depth.

New work in Pottawatomie County: Kerlyn Oil Co. No. 2 Ward, C E half SE SW Section 25-7-3e, rig; Atlantic Refining Co. No. 2 McCurry, NE NE SW Section 6-6-4, location; Norvell & Pierce No. 1 Atwater, NW SE SE Section 9-7-4, rigging up rotary; Sinclair Prairie Oil Co. No. 5 Wolf, NW cor. Section 29-7-5, drilling below 905 feet; Magnolia Petroleum Co. No. 1 Billington B, SE SE NE Section 21-7-5, location; Eagle Oil Co. No. 2 Green, SW NW SE Section 29-7-5, rig.

Seminole County

J. F. Smith and others No. 1 Killinsworth B, NW NW SE Section 28-7-6, Seminole County, found Calvin sand at 2,300 feet, was bottomed at 2,308½ feet and produced 65 bbls. of oil in 24 hours.

Commercial Drilling Co. No. 1-A Wright, NW SW SE Section 32-7-6, was dry and abandoned at 3,279 feet, total depth.

Hall, Troup & Moore No. 1 Dameron, NW NW SW Section 3-6-6, an old well, was deepened from 2,826 feet to 2,862 feet and recompleted for 80 bbls. of oil daily.

Rogers & Rogers No. 1 Cosar, SW SW NE Section 12-6-5, was a rig. Mid-Continent Petroleum Corp. No. 2 Tiger, SE SW SE Section 12-6-5, was moving in tools. Sunray Oil Co. No. 2 Swan, NE SE SE Section 12-6-5, was moving in tools.

Pontotoc County

Barbara Oil Co. No. 5 Mount, NE NW NW Section 36-5-7, North Steedman area, Pontotoc County, was completed for 75 bbls. of oil daily at 2,265 feet, total depth.

R. W. Vierson and others No. 1 Hatcher, NW NW NW Section 22-5-5, was dry and abandoned at 2,573 feet, total depth.

Superior Oil Co. No. 1 Norman, SW SW SW Section 7-5-5, was abandoned after plugging back from 2,896 feet, total depth, to 2,621 feet, acidizing and producing only 7 bbls. of oil with 100 bbls. of water.

Oklahoma County

Clark & Co. No. 1 Highley, SW NW SE Section 23-12-3w, Oklahoma City field, Oklahoma County, was bottomed at 6,614 feet and completed for iintial production of 270 bbls. of oil in 24 hours.

Same company's No. 1 Harding, SW SW NE Section 23-12-3w, drilled to 6,640 feet, plugged back to 6,580 feet and was dry and abandoned.

The company's No. 1 Tisby, SE NE SW NW Section 23-12-3w, was bottomed at 6,637 feet, plugged back to 6,488 feet, was shot and completed for initial daily production of 160 bbls. of oil.

Okmulgee County

E. I. Newblock No. 1 Jackrabbit, SW NW NW Section 36-15-12, Okmulgee County, topped Bartlesville sand at 1,590 feet, total depth 1,649 feet, was shot and produced 3,000,000 cu. ft. of gas daily.

First reports of new activity in Okmulgee County: Ralph Corey No. 4 Boucher, SW NE SE Section 24-16-11, rigging up machine; Jim Oil Co. No. 1 Reagen, NE SE SW Section 24-14-13, drilling below 675 feet; Royal Oil & Gas Co. No. 10 Johnson, SW NE NE Section 29-15-14, machine; E. W. Dodge No. 15 Payne, NE SE SE Section 17-15-14, machine.

Creek County

Central Commercial Oil Co. No. 1-A Ricks, NE SE SE Section 16-17-9, Creek County, found Bartlesville sand at 2,430 feet, total depth 2,460 feet, and produced 50 bbls. of oil in 24 hours.

(Continued on Page 105)

STEEL STOPS in TULSA for FABRICATION
... *then is* SHIPPED TO DISTANT MARKETS
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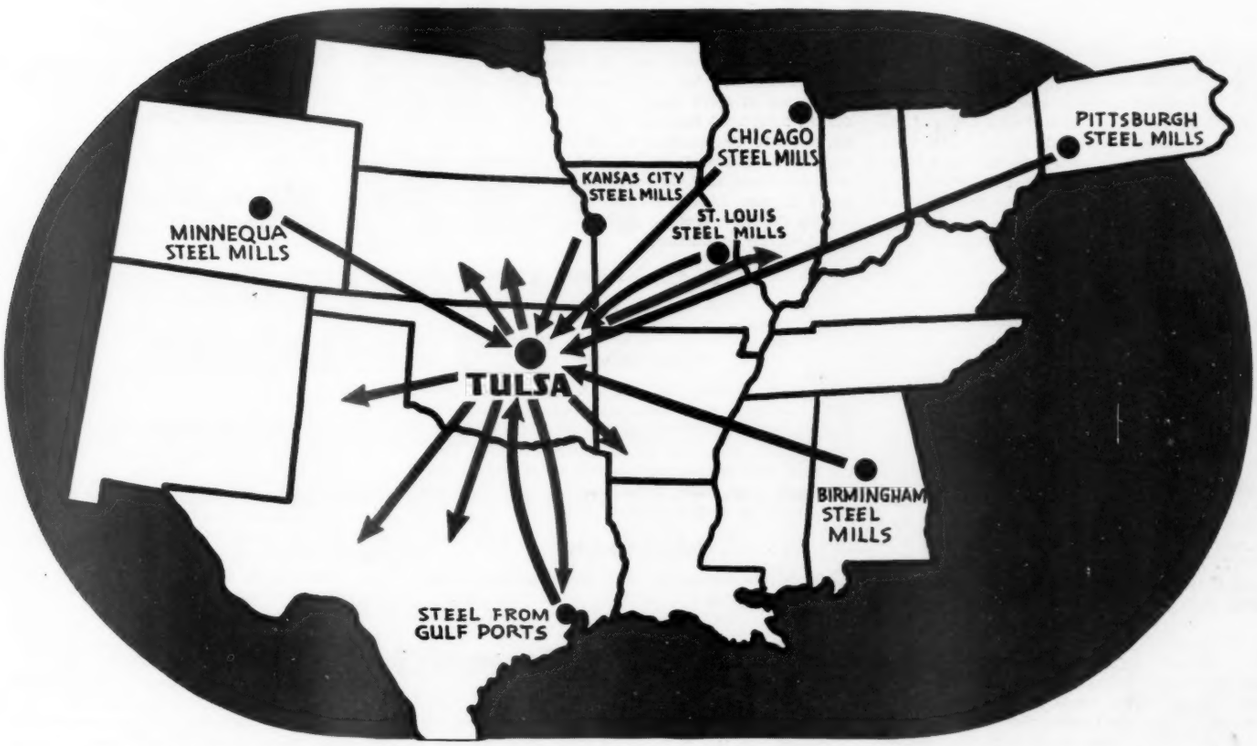


Fabrication-In-Transit Privileges. In Tulsa are located twelve steel fabricating plants having a total investment exceeding $4,500,000. These plants do a large volume of business with the oil industry, and a number of them have nation-wide distribution. Special fabrication-in-transit freight rates—which provide low shipping costs to distant markets—have been a basic factor in promoting the success of Tulsa's steel fabricating industry.

These freight rate privileges are afforded by the railroads, to give Tulsa fabricators the lowest "competitive" shipping rate existing between the steel mill, or point of origin, and the market, or point of destination. Tulsa fabricators, for instance, can take advantage of the low competitive water rate on steel between Chicago and Gulf Coast markets. That is, the raw steel products of Chicago mills can be shipped to Tulsa where they are unloaded and fabricated, and then can be shipped on to Gulf Coast markets at the low water rate, plus a very small stop-over charge.

Freight rate equities apply on shipments from Tulsa to the important oil field markets throughout the nation. These transit privileges are made available by TULSA'S STRATEGIC LOCATION, which places her in line of transit between ultimate shipping destinations and various steel mills. As shown by the map above, Tulsa steel fabricators have the advantage of purchasing raw materials from any one of several sources, including the steel mills of Minnequa, Kansas City, St. Louis, Chicago, Pittsburgh and Birmingham.

Low Production and Low Selling Costs. In addition to savings in distribution, Tulsa offers the steel fabricator an abundance of cheap fuel, as well as low electric power and water rates. Furthermore, the Tulsa steel fabricator saves on sales expense, because many of his customers and prospects maintain their executive and purchasing headquarters in the "Oil Capital". Thus they can be contacted conveniently and economically here in the city.

Firms which do not fabricate in Tulsa are invited to investigate the advantages of locating here. For special reports, without obligation, address the Oil Activities Department of the Tulsa Chamber of Commerce.

1940 INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY 18-25

There are Many Oil Centers—but only *one* Oil CAPITAL

TULSA
The Oil Capital of the World

West, Central and Panhandle Texas

By
D. H. STORMONT

Extensions and Big Wells in Western and Central Fields

FORT WORTH, Tex. Mar. 13.—Notwithstanding the fact that no new fields were discovered in the West Texas division during the past week, the area passed a very active period. The indicated completion of two important and closely watched North basin tests, possible production spreads to two Central basin fields, and a new producer serving to further link the Jordan and Waddell pools of southern Ector and northern Crane counties featured the development in the area.

The discovery of a new pool in Jones County, together with the still increasing activity throughout the entire county, held the interest in the West Central district.

One-half mile northeast of the Slaughter pool of Hockley County, Richardson No. 1 A. E. Coe shut off salt water by plugging back from 5,185 feet to 4,982 feet. It swabbed 3 to 4 bbls. of oil hourly for 21 hours, then was treated with 2,000 gallons of acid and as the week closed testing continued. The well is in the southwest corner of Labor 53, League 40, Maverick County School Lands.

In Cochran County and 1¾ miles west and north of the discovery well in the Dean pool, T. G. Shaw No. 1 Carrie S. Dean, League 94, Mills County School Lands, was installing a flow packer after the well swabbed 77 bbls. of oil in 10 hours from 4,981 feet.

Stimulated by favorable developments in the Shell Petroleum Corp. No. 1 Wapples-Platter Co., 2 miles northeast of the Bennett pool, Yoakum County, Tide Water Associated Oil Co. has acquired the southwest quarter of Section 615, just south and west of the test. The involved acreage offsets the well, located in the southwest corner of the north half of Section 161. There has been a heavy royalty play in the area as the result of the Shell test, which was last reported bailing after drilling plug at 4,991 feet. The test is reported only 90 feet lower structurally on the lime than the discovery well in the Bennett pool.

Central Basin Area

Prospects of production 2 miles south of the Emma pool in southern Andrews County were seen when Atlantic Refining Co. and Standard Oil Co. of Texas No. 1-B Cowden, wildcat just over the Ector County line, swabbed an estimated 25 bbls. of oil per day after initial treatment with 3,000 gallons of acid. Operators were preparing to retreat before attempting a gauge on the test. Location is in Section 1, Block 44, T.&P. Survey.

A mile north of the Foster pool of Ector County, Atlantic Refining Co. and Ray Rhodes No. 1-D Johnson, Section 43, Block 42, T.&P. Survey, flowed several unestimated heads of oil after being shot with 440 quarts from 4,085 feet to 4,250 feet, total depth.

An 8,200-Bbl. Well

One of the largest initial potentials for the area linking the Waddell and Jordan pools of northern Crane County was registered at Gulf Oil Corp. No. 16 Henderson, Section 3, Block 23-B, P.S.L. Survey. Acidized with 5,000 gallons at a total depth of 3,525 feet in lime, the well responded with a flow of 2,022 bbls. of oil in six hours. The well flowed 1,030 bbls. during the last three hours to rate a daily potential of 8,240 bbls. Farther to the northwest and also in the area linking the two pools, Gulf Oil Corp. has staked its No. 17 Henderson in the northeast quarter of Section 4, Block 23-B, P.S.L. Survey.

WEST TEXAS COMPLETIONS

(24-hour tests)

Crane County

Continental Oil Co. No. 4-D Hughes, 2,349-2,571 feet, 65 bbls. (O. W. D. D.). R. H. Henderson No. 1 University-Phillips, dry and abandoned at 3,370 feet. R. H. Henderson No. 2 University-Phillips, dry and abandoned at 3,375 feet. J. E. Mabee No. 10 McClintic, 2,860-3,007 feet, 463 bbls. Magnolia Petroleum Co. No. 1-18 University, dry and abandoned at 3,364 feet. Phillips Petroleum Co. No. 1 University, dry and abandoned at 3,403 feet. Quality Production Co. No. 4 Hughes, 2,033-2,098 feet, 15 bbls. Quality Production Co. No. 3 Hughes, dry and abandoned at 2,020 feet (well off production).

Andrews County

Furman Petroleum Co. No. 12 Ford, 4,208-4,455 feet, 1,808 bbls.

Ector County

Atlantic Refining Co. No. 5-D University, 3,370-3,655 feet, 1,146 bbls. Landreth Production and Phillips Petroleum No. 7 O. B. Holt, 4,100-4,246 feet, 1,524 bbls. Phillips and Pure No. 52 Cowden, 4,105-50 feet, 691 bbls. Shell Petroleum Corp. No. 8-A Witcher, 3,995-4,191 feet, 2,238 bbls. Stanolind Oil & Gas No. 16-B E. F. Cowden, 3,990-4,170 feet, 1,338 bbls.

Gaines County

Continental Oil Co. No. 2-43 Moore-Langdon, 4,900-74 feet, 1,016 bbls.

Irion County

Clyde Crabb No. 1 W. M. Koelke, dry and abandoned at 1,805 feet.

Pecos County

Arnold Oil No. 2 Byrne, 1,352-69 feet, 30 bbls. Arnold Oil No. 3 Byrne, 1,359-85 feet, 20 bbls. Pecos State Oil No. 2 State, 1,975-2,055 feet, 240 bbls.

Upton County

Shell Petroleum Corp. No. 40 Della Bowen, 2,205-16 feet, 516 bbls.

Ward County

Gulf Oil Corp. No. 115 Estes, 2,504-2,650 feet, 650 bbls.

Winkler County

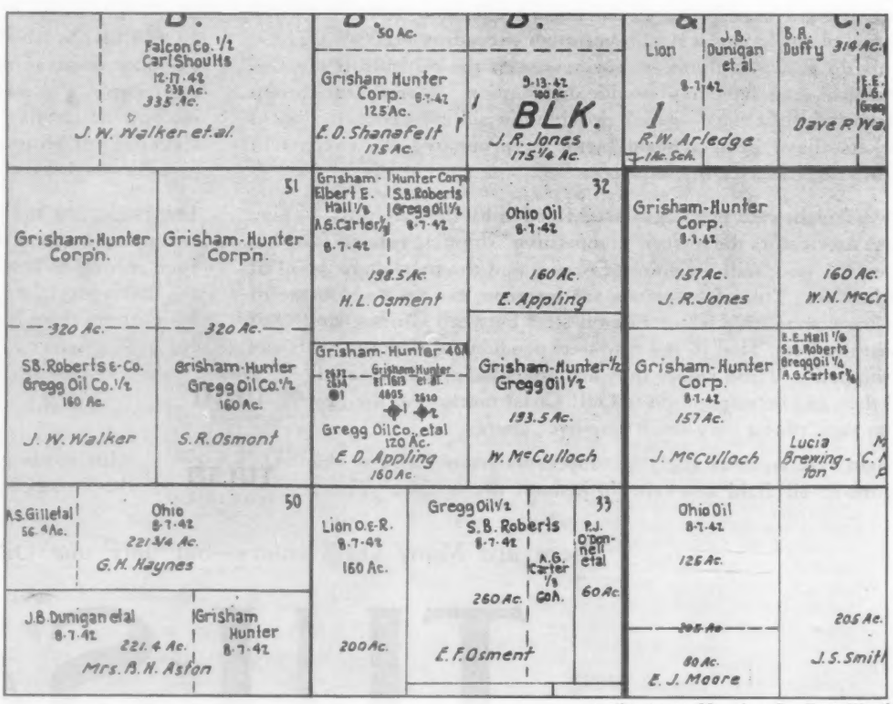
Magnolia Petroleum Co. No. 217 Walton, 3,190-3,257 feet, 70 bbls. Magnolia Petroleum Co. No. 218 Walton, 3,186-3,257 feet, 211 bbls. Magnolia Petroleum Co. No. 219 Walton, 3,160-3,252 feet, 146 bbls. W. K. Royalty Co. No. 4-D Walton, 2,885-3,060 feet, 704 bbls.

Yoakum County

Honolulu Oil No. 10-695 Bennett, 5,075-5,250 feet, 1,857 bbls. Humble Oil & Refining Co. No. 7 Wooten, 4,940-5,150 feet, 1,007 bbls. J. E. Mabee No. 6 Willard, dry and abandoned at 3,272 feet. Sinclair Prairie Oil No. 1-A R. M. Kendrick, 4,988-5,152 feet, 1,736 bbls. Aloco Oil Co. No. 7-A Willard, 4,935-5,164 feet, 705 bbls. Texas Pacific Coal & Oil Co. No. 16-X R. Bennett, 5,075-5,245 feet, 2,780 bbls.

WEST CENTRAL TEXAS

The discovery of an oil pool in Jones County and activity in seven other pools throughout the same county, together with new wildcat locations for several more of the West Central Texas counties, fea-



Southwestern Mapping Co, Fort Worth

Gregg Oil Co. has opened another oil field in Jones County, West Central Texas, with its No. 1 Appling. The well is higher on structure than the two nearby dry holes and indicates a decided westward trend of the structure

It costs less to drill a straight—smooth walled—full gauge hole with a

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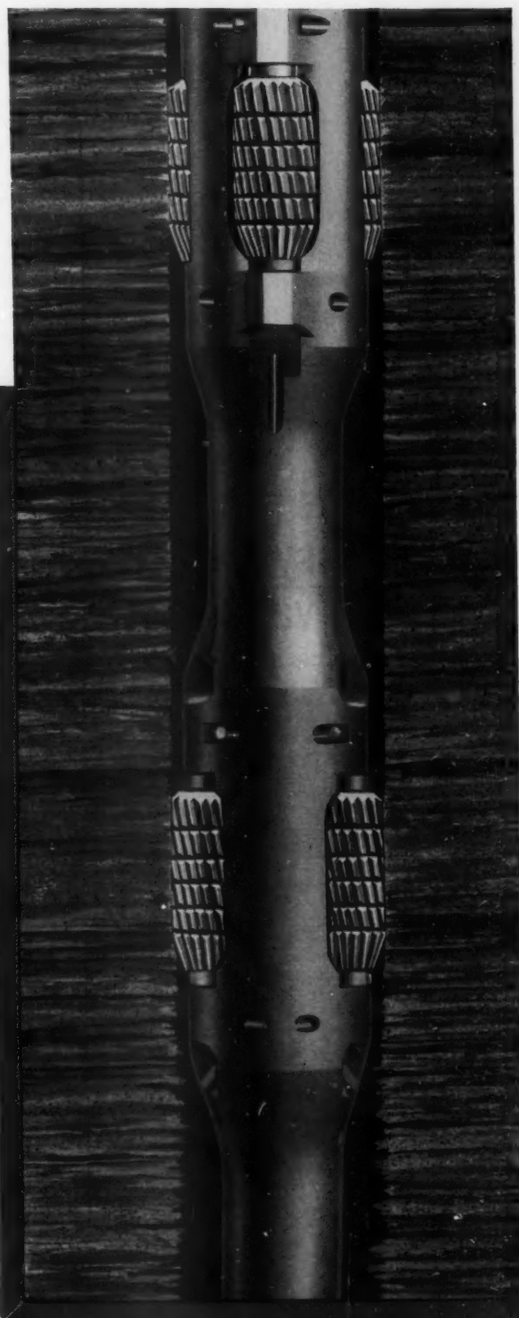

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tured one of the most active weeks in several months for the district.

A sand pool in northern Jones County, 5 miles west of Stamford, has been opened by the Gregg Oil Co. No. 1 E. D. Appling, which flowed 28½ bbls. of oil in one hour after drilling the plug in the 6-inch casing. The casing had been cemented after finding pay in the Swastika sand at 2,832-35 feet. When plug was drilled, the well began flowing at the rate of 12 bbls. an hour. Operator then deepened 1 foot, which increased the oil rate to 18 bbls. hourly, while another 1½ feet of penetration increased the rate to 28½ bbls. per hour. Located in the southwest quarter of Section 32, B.B.B.&C. Survey, the well is the third drilled in the area. The other two, both by the Grisham-Hunter Corp. of Abilene, apparently were on the east side of the structure. The first test found oil but was deepened into water at about 4,600 feet and abandoned. The second test failed to find the oil horizon. J. C. Hunter of Abilene, partner in the Grisham-Hunter Corp., is head of the Gregg Oil Co.

The Griffin pool in Jones County received another record well with the completion of Bert Fields No. 3 Taylor for a potential of around 5,000 bbls. per day. This well is the farthest northeast in the field, and flowed 749 bbls. in two hours and 55 minutes. The flow tops the previous record established by the same operator's No. 2 Taylor, south offset to the new well. Another completion in the same field was the Ungren & Frazier No. 2 Griffin, east offset to the discovery, with a flow of 315 bbls. in three hours and 50 minutes.

In the Noodle Creek area of southwestern Jones County, the Texas Co. No. 4 W. E. Camp, completed in 1929 from the regular pay horizon of the field, was deepened to the new horizon discovered late in 1938, and made 63 bbls. of oil in 10 hours from 3,135-40 feet. The company is moving in pumping equipment. The majority of the activity in the field consists of deepening old wells and the drilling of new ones to this deeper level.

East outposts have been announced for both the Lewis and Steffens pools in Jones County. Petroleum Producers staked No. 2 Lon Steffens as an east offset to its recently completed No. 1 Steffens. It is in the SE SE quarter Section 32, Block 15, T.&P. Survey. On the east side of the Lewis pool, Ungren & Frazier staked four locations on the Brock lease, two on each side of their No. 1 Brock, which has been given a gauge of 31 bbls. of oil per hour from saturation drilled from 1,880 feet to 1,906 feet. It is in Section 36, Block 15, T.&P. Survey. The two pools, Lewis and Steffens, are in diagonally adjoining sections of land and the new locations on the Brock lease, if eventually completed as producers, will almost join the two fields.

In southeast Jones County, and a mile west of the Hamby pool, Harry B. Dennis has announced an offset to the Ed. L. Evans No. 1 W. T. Crier, showing oil for an indicated shallow pool. The test will be Dennis No. 1 W. Wooten, 600 feet north of No. 1 Crier and located in the northwest quarter of Section 8, B.A.L. Survey. Location for a wildcat 2 miles east of the Sayles pool, also in Jones County, has been staked by S. C. Herring as his No. 1 Guitar Trust Estate. Location is on a 200-acre tract in the western part of the F. Sieverman Survey 12.

Callahan County

Two new wildcats in western Callahan County were made during the week. Petroleum Producers staked a 1,750-foot test on the J. M. Morrisset ranch 5 miles northwest of Clyde and about 10 miles northeast of Abilene. It is the second test on the ranch, the first having been by J. H. Sprouls & Co. of Fort Worth. Location is in the southwest quarter of Section 13, T.&P. Survey.

Westgate-Greenland Oil Co. is moving in materials for a wildcat 5 miles south of Elmdale and only 330 feet east of the Callahan-Taylor County line. It will be No. 1 Yost, projected to 2,100 feet. It is in the southeast quarter of Section 23, Block 8, S.P. Survey.

Young County

Young County received two new tests when Taubert & McKee Drilling Co., of Fort Worth, announced plans to drill two exploratory tests on a recently acquired 900-acre block in the east central part of the county. The acreage is out of the Shanafelt lands, and is in the J. Poitevent and H. H. McComber surveys. One of the wildcats will test the Caddo lime formation at around 4,000 feet, while the other will test the West Bryson pool pay horizon expected at about 2,800 feet.

Jack County

Wildcat production in Jack County, midway between Jacksboro and the Bryson pool, and about 4 miles east of production, will be sought by Rowan & Nichols at a location staked in the Hughes lands of the McKinney & Williams Survey, Abstract 436. It will seek the Bryson sand at around 3,100 feet.

PANHANDLE FIELD COMPLETIONS

(24-hour tests)

Potter County

Canadian River Gas Co. No. 4-A Masterson, 2,010-60 feet, 56,009,000 cu. ft. of gas.

Gray County

Dolomite Production Co. No. 5 Sailor, 3,135-3,210 feet, 388 bbls. Magnolia Petroleum Co. No. 20 fee No. 227, 2,885-2,959 feet, 254 bbls. Magnolia Petroleum Co. No. 21 Merton, 3,130-3,200 feet, 369 bbls.

Moore County

Shamrock Oil & Gas Co. No. 12 Sneed, 2,315-2,668 feet, 26,105,000 cu. ft. of gas.

Wheeler County

Pendleton & Vaughn No. 1 T. D. Holland, dry and abandoned at 2,240 feet.

WEST CENTRAL TEXAS COMPLETIONS

Coleman County

Texhoma Oil & Gas No. 2 Vaughn, dry and abandoned at 1,158 feet.

Haskell County

Forrest Development Co. No. 3 Pardue, dry and abandoned at 5,510 feet.

Brown County

Mitcham Brothers No. 1-B Newton, 1,235-56 feet,

(Continued on Page 94)

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The various sizes of cups are listed consecutively around the outside of the center dial, and the names of the manufacturers and trade names of the pumps are listed in the lower panel on the face of the selector.

To determine the size of the cup for use in any pump it is merely necessary to set the size and name of the pump opposite the manufacturer's name in the lower window and read the proper size of cup in the upper window.

In order to obtain the proper pump on which any size cup may be used, the size of the cup is set in the upper window and the name and size of the pump is read opposite the manufacturer's or pump name in the lower window.

This size and design of the selector permits desk use or filing. Or, the Selector may be hung in any convenient location, making the desired information readily accessible.

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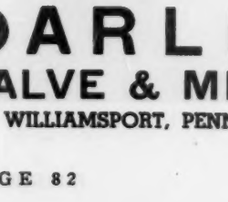

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Southwest Texas District

By
F. L. SINGLETON

Bird Island Gas Field Has Prospective Crude Producer

CORPUS CHRISTI, Tex., Mar. 13.—Pure Oil Co. and Superior Oil Co. No. 1 State, the second test to be drilled in the Bird Island gas field in Laguna Madre Bay offshore from Kleberg County, is being completed after a drill-stem test showed pipe line oil. The hole is bottomed at 7,320 feet, with 5½-inch casing cemented at that depth. Casing was perforated at 7,235-47 feet, and on a drill-stem test of two hours and 16 minutes 270 feet of 42.6-gravity oil and 90 feet of oily mud was recovered. Working pressure on the surface built up to 2,100 pounds while bottom-hole pressure was 3,550 pounds. At the close of the week tubing had been run and the well was being washed in.

The well is in Tract 155, approximately a half mile northwest of the same companies' No. 1 State, which was completed in November of last year at 7,210-78 feet. The present well topped the first Discorbis at 6,045 feet, large Discorbis at 6,724 feet, Heterostegina at 6,901 feet, round Marginulina at 7,102 feet, and the flat Marginulina at 7,210-22 feet.

Fohs Oil Co. No. 1 Sullivan, which opened production from a new horizon one-half mile north of the Samfrodyce field, Hidalgo County, began making an unestimated amount of gas through perforated casing at 3,424-32 feet, and the well had to be killed. Casing was reperforated at 3,432-37 feet, and it is flowing an estimated 63 bbls. of 24.8-gravity oil daily through a quarter-inch choke with tubing pressure 1,350 pounds and casing pressure 1,430 pounds.

The Brooks County side of the Kelsey field is believed to be partly defined as Humble Oil & Refining Co. No. 5 McGill Brothers, 2,799 feet west of No. 1 McGill, is drilling below 5,286 feet, several hundred feet below the normal producing depth. Broken sand and shale having an oil and gas odor were cored at intervals at 4,600 to 4,900 feet, but three drill-stem tests proved unsatisfactory. A 12-minute test at 4,800-08 feet, recovered 240 feet of muddy fresh water and 600 pounds working pressure. Another test at 4,947-55 feet recovered 30 feet of oily mud and 440 pounds of pressure, while the last test at 5,024-31 feet tested 30 feet of mud and 5 gallons of distillate with no pressure.

In the La Sal Vieja area, Willacy County, Cockburn Hargrove No. 1 Yturria Land & Livestock Co. is being watched closely as it cores ahead in oil sand at 4,867 feet, following a 15-minute drill-stem test at 4,838-67 feet, which tested 60 feet of oily mud and no working pressure. Three feet of shale and 5 feet of oil sand was recovered at 4,849-57 feet, while oil sand was cored at 4,857-67 feet.

Two new producers were added to the newly opened Mellon Creek field, Refguio County, as Copano Oil Co. completed No. 2-C and 3-C O'Connor, both of which extended production 933 feet northeast. No. 2-C O'Connor flowed 305 bbls. daily through a three-sixteenths inch choke from sand at 5,891-5,900 feet, the total depth, while No. 3-C O'Connor was completed in sand at 5,887-97 feet, the total depth, for an initial production of 395 bbls. daily through a three-sixteenths inch choke.

In the same county, in the La Rosa field, Hewitt & Dougherty No. 1-B Rooke defined production to the southwest when it was abandoned at a total depth of 7,021 feet. The well is located about a mile from production in Block 4, Aldrete 6¼ League. Morgan-Gulf Oil Corp. No. 1-B Rooke, a west offset to Hewitt & Dougherty No. 2 Rooke, in the southwest extension area, was drilled to 6,350 feet, and is being completed in a new sand at 5,709-14 feet which recently showed good results on a drill-stem test. The well was drilled to its total depth in hope of picking up the 5,900- and 6,300-foot sands, but it is reported that these sands did not show favorable indications.

Northeast of the Sweden field, Duval County, Gravis & Doran were preparing to test No. 1 Parr, after a drill-stem test at 5,860-90 feet recovered 1,130 feet of gas-cut mud. The hole was originally drilled to a depth of 6,281 feet and the hole was plugged back and 7-inch casing cemented at 5,998 feet.

Near the town of LaGloria, southern Jim Wells County, Magnolia Petroleum Co. No. 1 Samuel Maun, Ignacio De La Pena Survey, perforated casing at 7,093-7,110 feet, and on a drill-stem test, tested salt water. The perforations have been squeezed off and the well is scheduled to be retested at 7,155-65 feet. The hole was carried to a depth of 7,560 feet, and several sands showing distillate have been cored.

Rantex Oil Co. No. 1 Walker-McCarthy, Lot 2, Block 206, 600 feet from the Aransas Pass city limits on the San Patricio side of the McCampbell field, cemented 5½-inch casing on bottom at 7,250 feet and was preparing to perforate opposite oil sand cored at 7,122-53 feet. Approximately 3 miles west of the field J. K. Culton No. 1 Robert McCampbell was coring below 7,130 feet and has failed to log any showings of oil or gas.

Location for a deep test was made by Cities Service Oil Co. in the Ramerina area, Live Oak County, for No. 1 C. L. McCashin, in the Henry C. Jackson Survey, about 7 miles west of the town of Lagarto.

In the Weser area, Goliad County, Martex Oil Co. No. 1 A. L. Brecht, Thomas Hancock Survey, cored sand showing oil and gas at 5,220-21 feet, shale and sandy shale with a faint oil odor at 5,221-30 feet, and sand and shale showing oil and gas at 5,230-32 feet. The hole is being cored deeper after a 10-minute drill-stem test at 5,200-39 feet, tested 530 pounds of working pressure and 20 feet of mud cut with distillate.

In the Balcones Fault Line district, Wilcox Oil & Gas Co. was preparing to test another well in the Batesville area, Zavalla County. No. 4 Gillam, 2,640 feet east of No. 1 Gillam, G.W.T.&P.R.R. Survey, encountered a cavity at 4,011-14 feet, the total depth, which showed a slight amount of oil before circulation was lost. The hole is bottomed in the Georgetown lime, topped at 3,980 feet.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Abott & Trexler No. 1 Community, perforated casing 7,125-29 feet, 195 bbls., three-sixteenths inch choke. Walter Brauer and others No. 2 Brauer, perforated casing 7,128-31½ feet, 72 bbls., one-eighth inch choke. Frank Grote and Corgey No. 3 McCampbell, 7,160 feet, 200 bbls. three-sixteenths inch choke. Corgey & Grote No. 2 Peterson and others, total depth unknown, 200 bbls., three-sixteenths inch choke. Nueces Royalty Co. No. 1 Robert Harris perforated casing 7,117-20 feet, 200 bls., three-sixteenths inch choke. Rantex Oil Co. No. 1 Lemon Thompson, perforated casing 7,140-44 feet, 200 bbls., three-sixteenths inch choke.

Bastrop County

Carroll field: H. H. Coffield No. 8 Carroll, 2,255 feet, 10 bbls. oil, 20 bbls. water, pumping.

Duval County

Benavides field: O. W. Tarrant No. 2 Farias, 4,300 feet, abandoned. Casa Blanca field: Transwestern Oil Co. No. 17 Duval County Ranch Co., sand 1,172-83 feet, 10 bbls., pumping. Transwestern Oil Co. No. 18 Duval County Ranch Co., 1,248 feet, abandoned. Lundell field: Humble Oil & Refining Co. No. 11-B White, perforated casing 1,516-18 feet, 19 bbls., three-eighths inch choke. Rancho Solo field: Lanning and others No. 9 Peters, perforated casing 1,912½-20 feet, 80 bbls., pumping.

Caldwell County

Salt Flat field: H. H. Coffield No. 2-A Smith, 2,701 feet, 152 bbls. oil, 38 bbls. water, pumping. Martel Petroleum Co. No. 2-B Gray, 2,681 feet, 25 bbls. pumping.

Hidalgo County

Samfordyce field: Brinkoeter Oil Corp. No. 1 Guerra, sand 2,857-66 feet, 82 bbls., pumping.

Jim Wells County

South Alice field: Tom Graham No. 3-E Bankers Mortgage, perforated casing 5,346-52½ feet, 107 bbls., one-eighth inch choke. H. J. Mosser No. 1 fee, 6,681 feet, abandoned.

McMullen County

Ezzell field: Harry Ezzell No. 30 fee, perforated casing 1,490-95 feet, 102 bbls., pumping. Harry Ezzell No. 32 fee, 1,560 feet, abandoned. Hall Walker No. 1 Nueces River Bed, perforated casing 1,432-40 feet, gas well, spraying some oil. Rhodes field: Argo Oil Corp. No. 2-A Edrington, 3,010 feet, abandoned. Calliham field: Grubstake Investment Co. No. 1 Lark, 1,029 feet, 5 bbls., pumping.

Medina County

Chacon Lake field: Travis Basin No. 1 J. C. Pike, 425 feet, abandoned. Charles Wagner No. 33-A Medina Subdivision Farms, 347 feet, 2 bbls., pumping. Charles Wagner No. 34-A Medina Subdivision Farms, 354 feet, 2 bbls., pumping.

Nueces County

North Agua Dulce field: Union Producing Co. No. 4 Simmons, perforated casing 4,832-37 feet, 18,000,000 cu. ft. of gas. Agua Dulce field: L. M. Lockhart No. 1 A. E. Comstock, sand 4,835-4,914 feet, 2,000,000 cu. ft. of gas. Luby field: Stanolind Oil & Gas Co. No. 21 Spessard, 5,057 feet, 205 bbls., one-eighth inch choke. Clara Driscoll field: O. W. Killam No. 13 Ellick, perforated casing 5,281-90 feet, 500,000 cu. ft. of gas. Sun Oil Co. No. 2 Flynn, perforated casing 5,435-40 feet, 110 bbls., 9/64-inch choke. Riverside field: Henshaw Brothers No. 1 Countiss, 5,515 feet, abandoned.

Refugio County

Refugio field: Houston Oil Co. No. 60 Rooke, perforated casing 6,205-12 feet, 158 bbls., one-eighth inch choke. W. F. Morgan No. 3-A Mitchell, perforated casing 5,690-97½ feet, 20 bbls., quarter-inch choke. Tomoconnor field: Quintana Petroleum Corp. No. 31 Heard, perforated casing 5,886-92 feet, 1,463 bbls., three-eighths inch choke. Quintana Petroleum Co. No. 37-C O'Connor, perforated casing 5,858-66 feet, 1,333 bbls., three-eighths inch choke.

San Patricio County

East White Point field: Houston Oil Co. No. 3 Baldwin, perforated casing 5,650-55 feet 258 bbls., 5/32-inch choke.

Victoria County

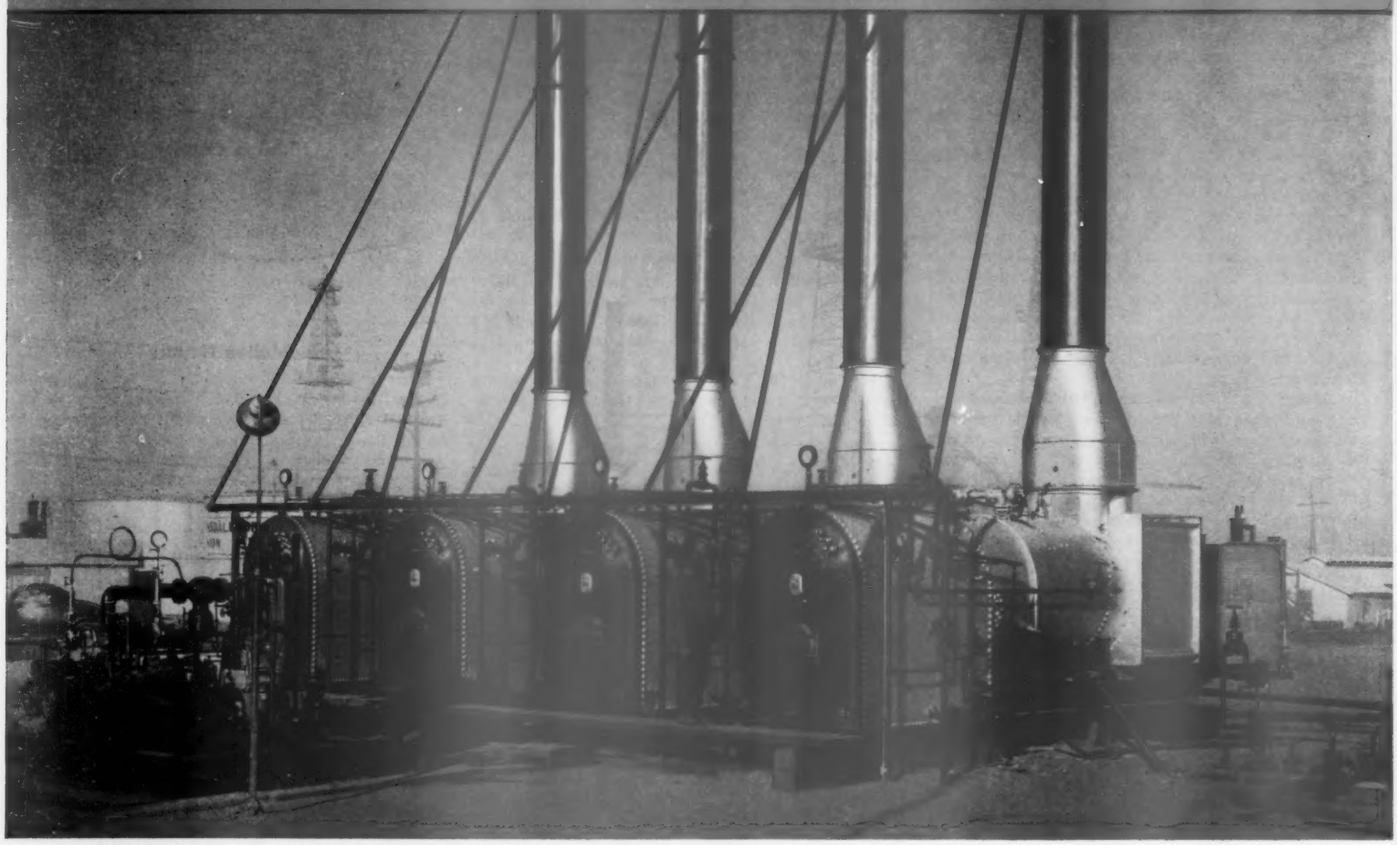
McFaddin field: Barnsdall Oil Co. No. 19 McFaddin sand 4,388-4,400 feet, 119 bbls., 9/64-inch choke.

Zapata County

Comitas field: Nordan & Morris No. 13-C Haynes, 1,274 feet, abandoned. Escobas field: Texas Co. No. 127 Measles, sand 1,249-1,310 feet, 40 bbls., pumping. Mirando Valley field: Buffalo Oil Co. No. 4-A Hinnant, sand 1,898-1,905 feet, 8 bbls., jetting with gas.

"We wanted to drill 9 Wells

says Haynes Ownby, "SO WE USED 'OILWELL'

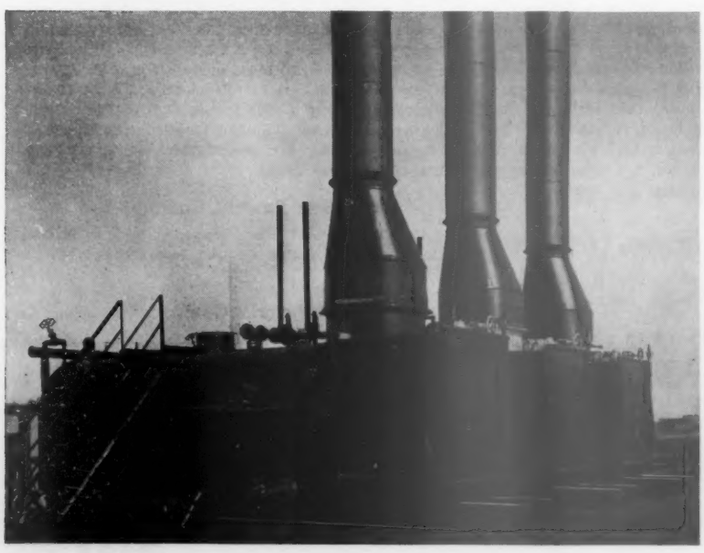


● MAIN ILLUSTRATION

SO MUCH LESS FUEL was being used by these "Oilwell" Superheated Steam Generators in comparison with conventional boiler plants at Rosecrans, Calif., that the gas company sent a man to check the meter—but it checked "OK." The saving was a result of the higher efficiency of "Oilwell" equipment. Superheated steam makes it practical and economical to drill several wells from this one central plant without moving the equipment.

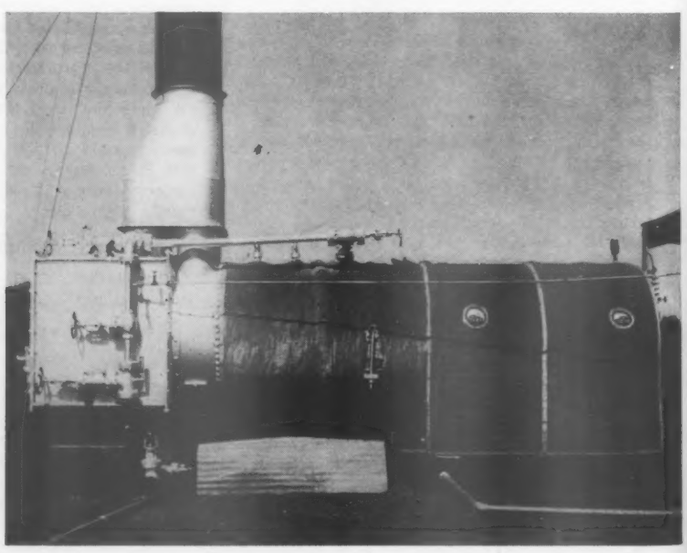
● BOTTOM LEFT

SNAPPY ACTION and plenty of good dry steam from this battery of three Portable "Oilwell" Superheated Steam Generators at Wasco, California.



● BOTTOM RIGHT

"OILWELL" Flexible-Blanket Insulation increases the efficiency of this "Oilwell" Portable Superheated Steam Generator near Ada, Oklahoma.



in the shortest possible time,"
SUPERHEATED STEAM GENERATORS"

"We can frankly say they made the best steam plant we have ever seen or used."

If you want to know why drillers are enthusiastic about the new "Oilwell" Portable Superheated Steam Generator, read this letter from Haynes B. Ownby Drilling Co.

HAYNES B. OWNBY DRILLING CO., INC.
705 GULF STATES BUILDING
DALLAS, TEXAS

December 28, 1939

Oil Well Supply Company,
Dallas, Texas

Gentlemen:

It isn't often that we get enthusiastic about any piece of oil field machinery, as there is so much good equipment available today more economical in performance than the machinery built when we started drilling wells back in 1927.

In developing our recent drilling program for the Fairbanks Field, Harris County, Texas, a careful examination was made of the rig we intended to use, as we wanted to drill nine 7,000 foot wells in the shortest possible time. Our boilers seemed inadequate so we decided to buy two of your new Steam Generators. Frankly, your enthusiastic sales talk on the "Oilwell" Portable Superheated Steam Generator, and what it had done elsewhere, had caused us to give it considerable thought. We had no idea, however, that two of these generators would do the job they did for us at Fairbanks.

We found that our rig using two Superheated Steam Generators made as good time as any of the twenty other rigs in the Fairbanks Field. With only two exceptions, all of the other rigs were equipped with three 125 horsepower boilers of conventional design. The feature that appealed to us most was that because of the superheated steam we could complete the entire nine-well program with only three settings of the generators. We drilled all around the steam plant, with uninsulated steam lines extending as far as 400 feet, but we always had good dry steam and plenty of pressure. Superheated Steam certainly does give snappier action on the hoisting engine and slush pumps, and we know this speeds up drilling time.

We spent a lot of time at the steam plant watching the operation of these generators, and can frankly say they made the best steam plant we have ever seen or used.

At first we considered your new product just an improved boiler, and we called it a boiler. Now we really know why you call it a "Superheated Steam Generator". You can count on us for a strong recommendation if you ever need one.

HBO:t

Yours very truly,
HAYNES B. OWNBY DRILLING COMPANY
By Haynes B. Ownby
President

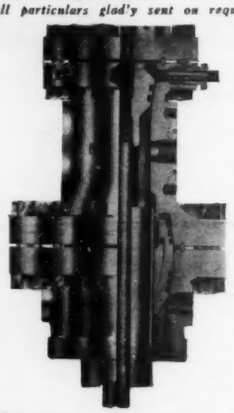
● AT LEFT

BATTERY of two "Oilwell" Superheated Steam Generators used by Haynes B. Ownby Drilling Co. Inc., which made as good time as other rigs using three conventional type boilers.

OIL WELL SUPPLY COMPANY
Branch Stores in All Oil Fields
Subsidiary of United States Steel Corporation

"OILWELL"

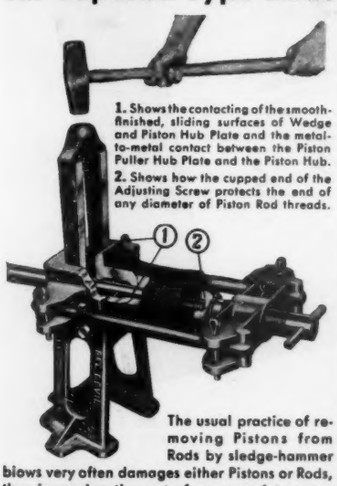
O-C-T *SLIP–SUSPENSION*
CASING HEAD permits drilling, running and cementing casing and hanging casing at any desired point through oversize flanged blowout preventer equipment. Last joint of casing is cut off above hanger and welded thereto as shown below . . . no special length joint of casing is required. T-16 Tubing Head flanged above Casing Head, as shown below, permits drilling in and running and landing tubing through blowout preventer equipment. Lock down screws force hanger into sealing position before removal of preventers.
Full particulars glad'y sent on request.



O-C-T type C-7X Slip—Suspension Casing Head with O-C-T type T-16 Tubing Head flanged above.

OIL CENTER TOOL CO.
O·C·T
HOUSTON, TEXAS, U.S.A.
CABLE ADDRESS "OCTATOOL"
Sold Through Supply Stores

Red Devil
PISTON PULLER
for Tapered Type Rods


1. Shows the contacting of the smooth-finished, sliding surfaces of Wedge and Piston Hub Plate and the metal-to-metal contact between the Piston Puller Hub Plate and the Piston Hub.
2. Shows how the cupped end of the Adjusting Screw protects the end of any diameter of Piston Rod threads.
1
2

The usual practice of removing Pistons from Rods by sledge-hammer blows very often damages either Pistons or Rods, thus increasing the cost of pump maintenance.
The RED DEVIL Piston Puller removes badly stuck Pistons, without injury to either Piston or Rod, EASILY and QUICKLY. A few hammer blows on the top of the Wedge (see illustration) forces the Piston forward and loose from the Rod taper. Write for Bulletin No. 113-B.

OIL WELL MFG. CORP.
6000 SOUTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA
CABLE ADDRESS "OWMCO"

Among the Drilling

TAUBERT & McKEE DRILLING CO., Fort Worth, Tex., added to the growing list of wildcats in Young County, North Texas, when it announced plans to drill two tests on a recently acquired 900-acre block in the east central part of the county, near the Jack County line. The acreage is out of the Shanafelt lands, and is in the J. Poitevent and H. H. McComber surveys. One of the new wildcats will test the Caddo lime formation at around 3,900 feet, while the second will be projected to the pay section of the West Bryson pool, expected at around 2,800 feet.

RICHARDS & HOLLOWAY, contractors and operators of Tyler, Tex., are preparing to start a new wildcat test in Kaufman County and are nearing completion of a test in Henderson County Flag Lake pool, eastern Texas. The new wildcat in Kaufman County is about 1½ miles northeast of Gossett in the southern part of the county. It will be the operators' No. 1 Tuggle, and is projected to the Woodbine sand. In the Flag Lake field of Henderson County, Richards & Holloway are preparing to drill in their No. 2 Cities Service-Tarkington, south and slightly west of their No. 1 Cities Service-Tarkington, completed last week. The test found the Woodbine sand at a depth of 3,047 feet and bottomed the hole 2 feet below that depth. On completion of the well Richards & Holloway will move the rig about 3 miles northeast of the field for Tyler & Smith and Richards & Holloway No. 1 Rowe & Baker, new fault line operation.

BIRDWELL OIL CO., Wichita Falls, Tex., has given the increasingly active Clay County, North Texas, further impetus by staking location for a deep 5,800-foot test 2 miles north of Halsell. The test is No. 1 Furd Halsell, staked 3,292 feet east and 920 feet south out of the southeast corner of the John Rogers Survey but in the W.C.R.R. Survey, Block 16, Abstract 976. The company holds a block of around 3,000 acres in the area. Materials are being moved in for immediate spudding.

C. T. McLAUGHLIN & CO., INC., of Midland, Tex., has received contract from Lone Star Gas Co. for its third test on the Bert Page ranch in the Schleicher County, West Texas, gas field. The new test will be No. 1 Shell-Page, in the northwest corner of Section 31, Block L, G.H.&S.A. Survey, and is about 1,500 feet northeast of Cooper Gas Co. No. 2 Page. The contractor will move in a spudder to drill No. 1 Shell-Page to around 1,500 feet. The spudder will be replaced by a rotary machine for completion of the contract. McLaughlin & Co. also is drilling two other tests for Lone Star Gas Co. on the Page ranch. No. 1 Humble-Page is drilling below 4,600 feet while No. 2 Humble-Page is drilling below 2,200 feet.

W. B. OMOHUNDRO, contractor and operator of Wichita Falls, Tex., has received contract for drilling two new wildcats in North Texas. One is in Baylor County, staked by British American Oil Co. as its No. 1-G F. C. Green. The new test is 3½ miles southeast of the company's No. 1 Green, pool opener completed for 250 bbls. of oil daily from 2,585-2,605 feet. Contract depth is 5,000 feet. The other wildcat is in Archer County and was also staked by the British American Oil Co. Test is No. 1 T. B. Wilson, 330 feet out of the northwest corner of Section 12, H.&T.C. Survey. It is understood the test is a community affair with contributions coming from several acreage holders in the vicinity. It is 4 miles southeast of the 4,500-foot dry hole recently completed by the contractor in Section 5, Block 3, T. B. Wilson ranch.

CLIFF CAMP DRILLING CO., Dallas, Tex., has taken over operations of Howard & Means No. 1 Lynch, scheduled 4,650-foot Strawn test southeast of Callisburg in Cooke County. The contractor is moving in materials and expects to start drilling in the near future.

ART TUCKER, operator, refiner and contractor of San Angelo, Tex., is moving in materials for an east offset to Runnels County's first oil producer from the Palo Pinto lime 6 miles northeast of Ballinger. The test will be drilled for Homer Price as his No. 2 J. C. Beddo, an east offset to his and associates No. 1 J. C. Beddo, pool opener. It is projected to the producing horizon of the pool at around 2,900 feet. Location is in the northeast corner of the south half of Subdivision 51 of the Domingo Diaz Survey 532.

OLSON DRILLING CO., Odessa, Tex., and Tulsa, has received contract from Anderson-Prichard of Oklahoma City for drilling a new Ordovician test in Pecos County, West Texas. Test will be on the M. I.

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INSURE INCREASED SPEED AND ECONOMY

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STANDCO BRAKE LINING
is the drillers' best friend because it makes the easiest brake known and "feeds off" evenly while drilling. It never scores brake rims.
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STANDARD BRAKE LINING CO.

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call or wire for a
RED BALL
Outside Cutting Tool

A competent operator of long experience, and a time-tested tool will have you out of trouble in the least possible time, at the least possible expense.

J. S. Abercrombie Co.
21st FLOOR GULF BLDG.
HOUSTON - TEXAS

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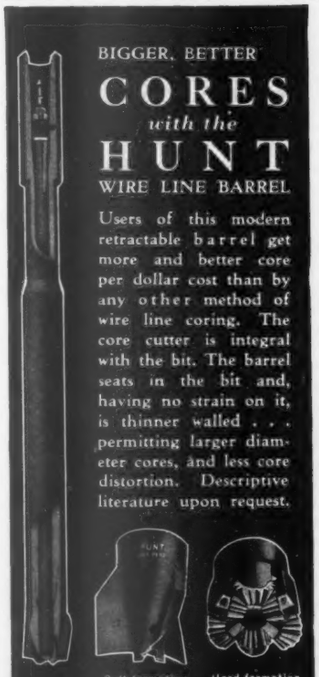
CORES
with the
HUNT
WIRE LINE BARREL

Users of this modern retractable barrel get more and better core per dollar cost than by any other method of wire line coring. The core cutter is integral with the bit. The barrel seats in the bit and, having no strain on it, is thinner walled . . . permitting larger diameter cores, and less core distortion. Descriptive literature upon request.



Soft formation core head
Hard formation core head

HUNT TOOL COMPANY
HOUSTON, TEXAS
Patents Authorized Appleman Bit Service Co.
HUNT WIRE LINE CORE BARRELS

BIT SERVICE SHOPS:
Houston, Joinerville, Talco, Corpus Christi, Bay City, Alvin, Texas . . . Odessa, Jennings, Houma, Louisiana.

Masterson lease, in the Masterson pool, Section 104, Block 10, H.&G.N. Survey. Contract calls for 6,500 feet and a crew of men is moving in materials.

MANNING & MARTIN, Tulsa, and Denver, Colo., are drilling below 3,140 feet in the deep test for Sinclair Prairie Oil Co. on the eastern edge of the Tubbs area of Crane County, West Texas. The contracting firm is using the heavy-duty Diesel-electric rig which they used in drilling a deep exploratory test for the same company in Potter County of the Texas Panhandle. The test encountered several gas shows in drilling from 2,830 feet to 2,928 feet. Location is in Section 3, Block 27-B, P.S.L. Survey.

HALLIBURTON DRILLING CO. received contract from Roper & Todd for a 9,000-foot test to be drilled in the Pine Alley prospect, northeast of St. Martinsville in St. Martin Parish, Louisiana. The well is on the Levert plantation in Section 42-10s-7e.

ALLEN & MORRIS are operating three rigs in the La Rosa field, Refugio County, Texas, for Coronado Corp. No. 10 Rooke is drilling below 5,629 feet, No. 11 Rooke is drilling below 5,764 feet, while No. 2 Michna is below 3,943 feet. In the Luby field, Nueces County, two operations are reported for the Seaboard Oil Co.

OVEN DRILLING CO., Enid, has been drilling two wells for Champlin Refining Co. in the Hillsdale pool, Garfield County, Oklahoma. No. 1 Allen, in SE cor. of Section 26-24-8w, was drilling at 6,905 feet and looking for the Viola lime within the next 15 to 20 feet. No. 1 Mackey, in NW cor. SE of Section 4-24-8w, had the tubing pulled and was preparing to shoot the pay.

CROSBY DRILLING CO. is drilling below 6,000 feet in No. 1 George S. Wilson, a wildcat south of Algoa in Brazoria County, Texas, while in Jacks County material is being moved in for No. 1 L. Kopnisky, southeast of the discovery well in the P. Green Survey.

KERR-LYNN & CO. has been drilling No. 1 Laging, in C NE SW of Section 30-4n-9w, in Comanche County, Oklahoma, which is below 4,699 feet in the Pontotoc formation. Scattered oil and gas showings are reported as having been noted in cores from 3,910 to 4,275 feet, and from 4,580 to 4,655 feet. Drilling is now preceeding below a depth of 5,000 feet. This organization has also been drilling No. 7 Rumsey, in NE SE SW of Section 23-11-17w, in the Bemis pool of Ellis County, Kansas, where it got a potential of 3,500 bbls. a day in the Arbuckle lime at 3,450 feet.

FRANK GRAVIS is attempting to open a new producing area northeast of the Sweden field, Duval County, Texas, as a production test is being made on No. 1 Atlee Parr, a wildcat test in the San Andres grant. Casing was cemented for a production test following a drill-stem test at 5,860-90 feet which tested 1,130 feet of gas-cut mud. Seven-inch casing was cemented at 5,998 feet.

HELMERICH & PAYNE, INC., Tulsa, has been drilling No. 3 Kenworthy, NE NW NW Section 14-14-6, Lincoln County, Oklahoma, which had the Prue sand at 2,907 to 2,967 feet and was preparing to shoot and test at a total depth of 2,982 feet. A new start was announced for the Crews area of Logan County, Oklahoma, when Helmerich & Payne, Inc., announced the crew was erecting derrick and moving in rotary tools at No. 1 Henderson in SE cor. NW of Section 27-16n-1e. Helmerich & Payne recently completed a 7-mile gas line to their two wells which are making considerable distillate. No. 1 Henderson is a farm-out from Gulf Oil Corp. and is owned jointly with the Atlantic Investment Corp., Tulsa. Deep Rock Oil Corp. and Helmerich & Payne, Inc., are drilling No. 2 Scott in NE cor. of Section 20-28n-1w, in the Southeast Braman pool, in Kay County, Oklahoma, below 800 feet. Helmerich & Payne, Inc., No. 1 Myatt, a wildcat, in Section 99 of E. T. Survey, 4½ miles west of Danevang, in western Wharton County, Texas, was halted at 6,515 feet in the Cockfield formation. Plans are being made for a second test in the same area, and geologists are seeking the spot.

STROZIER DRILLING CO. No. 1 Gulf, NE SE NE Section 7-15-12, Okfuskee County, Oklahoma, was drilling below 1,939 feet and going to the Wilcox.

OKAN DRILLING CO. has been drilling No. 1 Ashman, C NW NW Section 29-23s-3w, Harvey County, Kansas, at total depth of 3,371 feet; it filled with 700 feet of oil and was acidized with 2,500 gallons.

REED'S
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DRILLING BIT WITH
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CORE BARREL

REED 'B-R' Drill Collar and 3-Blade Drilling Bit with Core Barrel in position

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IF WATER IS A NEED OR A NUISANCE—DEPEND ON POMONAS . . .

Here's a Pomona Pump on a dirty construction job. Ordered at five o'clock on New Year's Eve, and installed the next morning on New Year's Day, 1939. Up in the air, but using only half the current and delivering four times as much water as another pump that died on the job.

Pomona Pumps will out-pump and out-live any other kind under the worst possible conditions—dirty water—bad location—frequent removal—emergency operation.

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Water-Lubricated
TURBINE PUMPS

North Louisiana, Arkansas

By GEORGE WEBER

Central Louisiana Scene of Rapidly Growing Lease Play

SHREVEPORT, La., Mar. 13.—Drilling developments in the Ark-La-Tex area continued quiet during the past week, with little activity of interest outside of routine field completions. Cotton Valley showed an interesting completion in the Holloway sand. A wildcat in Natchitoches Parish, Louisiana, is being watched closely for a possible new discovery. Considerable interest of the tri-state area is directed to the central portion of Louisiana, where the play in the SpartaWilcox trend is rapidly gaining momentum.

Spurred by results in the Eola and Bancroft fields, the leasing campaign now under way and centered in Avoyelles and Rapides parishes is reported authoritatively to have resulted in the leasing or optioning in excess of a quarter of a million acres in the past month.

In North Louisiana, the Cotton Valley field continues as the most active drilling spot. During the week three deep wells were completed, and a fourth was shut in following unexpected developments. The latter well, Roy Fisher and others No. 1 S. P. D. Coyle, SW cor. Section 23-21-10 near the center of the anticlinal field structure, was shut in at the week-end, after making an excessive gas-oil ratio in the Holloway sand. The operators had perforated casing at 5,543-59 feet and the well began flowing at the rate of 21 bbls. per hour. The oil flow continued for three hours, when gas began breaking in, and the flow continued at the rate of 8 bbls. of distillate per hour and an estimated 4,000,000 cu. ft. of gas daily. The well was then shut in to await orders.

Production by Pools

Estimated daily gross production all companies week ending March 11:

NORTH LOUISIANA

	Bbls.
Bellevue	660
Caddo heavy	2,520
Caddo light	4,090
Converse	460
Cotton Valley heavy	90
Cotton Valley light	*11,945
Cross Lake	2,715
De Soto and Red River	1,165
Elm Grove	240
Haynesville	2,900
Holly	75
Homer	2,675
Lisbon	6,395
Pleasant Hill	105
Rodessa	29,160
Sarepta-Carterville	†430
Sligo	1,845
Sugar Creek	245
Urania	2,785
Zwolle	2,955
Total	73,455

SOUTH ARKANSAS

Buckner	1,570
Champagnolle	1,730
El Dorado	1,705
Lisbon	250
Magnolia	3,015
Miller County	350
Nevada	595
Rodessa	5,510
Schuler	18,625
Smackover light	1,900
Smackover heavy	14,850
Stephens	515
Troy	1,060
Urbana	1,165
Village	610
Total	53,450

Texas side of Rodessa field, 30,325 bbls. daily.
*4,660 bbls. is distillate.
†145 bbls. is distillate.

On Top of Structure

Located at the top of the structure, the well is the first large gas-distillate producer completed in the Holloway sand of the Travis Peak formation at Cotton Valley. Showings of gas and distillate have been found in other wells nearby, but the Fisher well definitely indicates the presence of a gas cap in the Holloway sand, which has proved erratic in its extent through the field.

The three other wells that reached the completion stage included a Bodcaw gas-distillate producer, a Bodcaw oiler, and a Holloway oil well. The Bodcaw distillate well, Hunt Oil Co. and Standard Oil & Gas Co. No. 1 Coffee-Webster Investment Co. unit, C NE NW Sec. 36-21-10, on the southeast edge of the field, made an initial production of 15¾ bbls. per hour of distillate, together with about 3,000,000 cu. ft. of gas. Tubing and casing pressures were equalized at 1,000 pounds. The well made its initial gauge on a half-inch choke.

The Ohio Oil Co. brought in No. 1 S. S. Merritt, NE cor. Section 14-21-10 for a Holloway sand oil producer flowing at the rate of 540 bbls. per day through a quarter-inch choke, with casing pressure of 1,200 pounds and tubing pressure of 775 pounds.

A second completion on the extreme southeast edge of the field was a Bodcaw sand oil producer. The well, Stanolind Oil & Gas Co. and W. Delaney No. 1 Pardee-Coffee unit, C NE SW Section 36-21-10, topped the deep lower Marine sand at 8,594 feet and 7-inch casing was set at 8,595 feet. Its initial gauge showed 751 bbls. of fuel in 12 hours through a half-inch choke, casing pressure 2,550 pounds and tubing pressure 770 pounds. The oil runs 42.8 degrees in gravity and is similar to the production of the Stanolind Oil & Gas Co. No. 1 Pardee, the original oil well in the Bodcaw, which is located in a northeast offset position to the current completion.

Shreveport Field

Shreveport saw little development of outstanding interest in drilling, but the production of the field was drastically changed by an order issued by the Louisiana Department of Conservation. Under the new ruling, the field is limited in production to 2,700 bbls. daily for 13 wells. The order, retroactive in effect to March 1, places allocation on a volumetric basis, providing for a limit of 2,000 cu. ft. per barrel gas-oil ratio. This gas-oil ratio ruling will effect many of the wells' allowables considerably, and it is designed to halt the excessive withdrawal of gas, and resultant reservoir pressure dissipation. The 40-acre spacing rule was adopted for the entire field.

The Vivian area of Caddo Parish added one small producer the past week, but a second well was reported flowing by heads. The new completion, R. Armstrong No. 2 Henderson made an estimated 25 bbls. daily, including about 20 per cent salt water, from the shallow 2,500-foot sand. Following failures of recent days in the area, two locations were abandoned. Burnham Drilling Co. No. 1 Bell was reported to be making 100 to 150 bbls. daily by heads.

In Bossier Parish an interesting test is under way. The Triangle Drilling Co. No. 1 Sandridge, located 1 mile west of the new 3,100-foot production at Sligo, is drilling below 1,700 feet.

Natchitoches Parish is attracting attention, with the wildcat, Jack Lent's No. 1 Whatley, located in the Ajax area, SW cor. of Section 17-10-10. The well tested the Fredericksburg sand at 3,282-96 feet, recovering 100 feet of mud cut with oil of 40 gravity, and this week a string of 6⅝-inch casing was set at 3,282 feet. The operator was drilling plug for a production test.

The Joaquin gas-distillate field of Shelby County, eastern border of Texas, gained another active drilling operation, with the spudding of the Paul Pewitt No. 1 Rushing Estate in the M. Smith Survey.

Drilling activity in Arkansas is on the increase, with operations centering in Columbia County, where active tests are nearing the Smackover lime in the Magnolia, Village and Atlanta fields, and an interesting wildcat, Phillips Petroleum Co. No. 1 Askew Unit, is under way between the Magnolia and Buckner fields.

Twenty-five Year Club Enrollment Growing

R. A. Wotowitch, of Cities Service Oil Co., reports a gratifying response to the suggested organization of a petroleum industry Twenty-five Year Club having as its purpose an annual gathering during the sessions of the American Petroleum Institute of those who had served 25 years or more in the industry.

Among those who have already enrolled are: E. Smith, president, Standard Oil Co. of Kentucky (1894); J. W. Van Dyke, chairman of the board, Atlantic Refining Co. (1871); Ben Brown, Humble Oil & Refining Co., Houston; Walter Saybolt, vice president, Standard Oil Co. of New Jersey (1902); Allan Jackson, vice president, Standard Oil Co. (Indiana); Samuel Lane, formerly Galena Signal Oil Co. (1896); H. W. Dodge, vice president, Texas Co.; Dan Moran, president, Continental Oil Co. (1908); William J. Patterson, manager, Atlantic Refining Co., Pittsburgh, Pa. (1892); C. E. Arnott, vice president, Socony Vacuum Oil Co., Inc.; C. S. Smith, vice president, National Refining Co.; Nort Weber, vice president, Pure Oil Co.; George Fox, president, Henry Cross Co., Chicago (1889); O. B. Bingham, manager, Henry H. Cross Co. (1907); W. G. Skelly, president, Skelly Oil Co., Tulsa (1894); E. I. Hanlon, president, Hanlon Companies, Tulsa (1903); W. H. Berg, president, Standard Oil Co. of California (1902); L. P. St. Clair, chairman, Union Oil Co. (1904); George MacDonald, manager, Richfield Oil Co., New York (1912); S. Mart Smith, manager, W. H. Grace Co., New York (1907); Thomas M. Murphy, manager, Daugherty Refining, Petrolia, Pa. (1905); Charles H. Thomas, sales manager, Continental Co. (1894); Walter Miller, Continental Oil Co. (1909); W. W. Bruce, Continental Oil Co. (1910); George F. Smith, Continental Oil Co. (1907); W. H. Ferguson, Continental Oil Co. (1910); Harry A. Logan, president, United Refining Co., Warren, Pa. (1902); Roy B. Jones, president, Panhandle Refining Co., Wichita Falls, Tex. (1912); W. F. Sims, refining manager, Panhandle Refining Co., Wichita Falls, Tex. (1910); W. D. Anderson, vice president, Atlantic Refining Co. (1898); E. H. Blum, vice president, Atlantic Refining Co. (1905); T. G. Delbridge, manager, Atlantic Refining Co. (1909); J. D. Gill, director, Atlantic Refining Co. (1905); E. J. Henry, vice president, Atlantic Refining Co. (1905); J. E. Holm, manager, Atlantic Refining Co., Tulsa (1911); W. M. O'Connor, vice president, Atlantic Refining Co., Philadelphia (1912); H. M. Nichols, plant manager, Atlantic Refining Co., Philadelphia (1904); H. B. Stone, manager sales, New York and New Jersey, Atlantic Refining Co. (1912); R. C. Tuttle, vice president, Atlantic Refining Co. Philadelphia, Pa. (1910); W. C. Yeager, vice president, Atlantic Refining Co., Philadelphia (1896); A. L. Ellsworth, president, British American Oil Co., Toronto, Canada, formerly with Standard Oil Co. of New Jersey (1897); J. C. Miller, treasurer, British American Oil Co., formerly with Standard Oil Co. of New Jersey (1897); D. Collier, treasurer, Standard Oil Co. of California (1903); O. P. Kenney, Wolverine Empire Oil Co., Oil City, Pa., former president, National Petroleum Association (1907); Col. Robert W. Stewart, former president, Standard Oil Co. (Indiana); B. I. Graves, vice president, Tide Water Associated Oil Co., San Francisco; E. Whitehead, fuel oil manager, Tide Water Associated Oil Co., San Francisco; W. F. Dunn, district manager, Tide Water Associated Oil Co., Fresno, Calif; W. P. Hugo, manufacturing manager, Tide Water Associated Oil Co., San Francisco; Richard A. Wotowitch, manager wholesale, Cities Service Oil Co., New York (1901).

Rocky Mountain Area

By
T. R. INGRAM

Extend Sundance Pool; Big Well in South Eunice Field

DENVER, Colo., March 13.—Showing of oil in Axelind Oil Co. wildcat in Archuleta County, Colorado, has not been tested, and possibilities are not very encouraging. Waterville Oil Co., a local concern, will attempt another test of the Pennsylvanian north of the Florence-Canon City pools.

An extension of the Sundance sand pool in Lance Creek more than a mile to the east is indicated in the Ohio Oil Co. No. 1 Leo, which was plugged back to that horizon from the Leo sand and made 190 bbls. initially in the Sundance. Continental Oil Co. will deepen an old well on the Ant Hills dome to test the Sundance and Leo sands. Two new operations by the Yale Petroleum Corp. in the Garland field were released. General Petroleum Corp. No. 1 State, in Cole Creek, found the Sundance barren. An extension of the Osage field in Weston County more than a mile to the west is imminent in Whedon and others No. 1 Government.

Two new operations in Kevin-Sunburst and one in Cut Bank were reported in Montana. G. & A. Oil Co. No. 12 Goeddertz, in Kevin-Sunburst, is pumping 80 bbls. settled.

NEW MEXICO

A big producer was near completion in the northeast extension of the South Eunice field, Lea County, New Mexico, at Texas Pacific Coal & Oil Co. No. 14-A State, Account 2, C NW NE Section 11-22-36. It was reported flowing at the rate of 400 bbls. of oil an hour through partially opened gate on 7-inch casing, and filled two 1,000-bbl. tanks and pits. Potential was estimated at 9,600 bbls. of oil daily, with daily gas volume estimated at 4,000,000 cu. ft. It found lime pay at 3,700 feet, total depth 3,790 feet.

Six oil wells were completed in Lea County, one oil well in Eddy County, and a wildcat failure was recorded in Chaves County. The Lea County wells were:

In the Eunice pool, Gulf Oil Corp. completed its No. 4 Ramsey, C SE SE Section 35-21s-36e, at total depth of 3,860 feet, with top of pay found at 3,760 feet. The well flowed 247 bbls. of oil in five hours, naturally, with 1,120,000 cu. ft. of gas daily. Two-inch tubing was set at 3,853 feet.

Same company's No. 6 Stuart, C NW NW Section 11-25s-37e, Langlie area, flowed 206 bbls. of oil in 20½ hours through tubing set at 3,415 feet and gauged 1,120,000 cu. ft. of gas daily. Pay was found at 3,307 feet, total depth 3,430 feet.

Maljamar Oil & Gas Co, No. 1-B Mitchell, C NE SE Section 20-17s-32e, Basin area, flowed 200 bbls. of oil a day, naturally, through casing at 3,721 feet, total depth. Pay was topped at 3,696 feet.

Standard Oil Co. of Texas No. 3 State, Lease 3, C NE NW Section 32-17s-35e, Vacuum field, had top of pay at 4,390 feet, was bottomed at 4,635 feet and, after setting 2-inch tubing at 4,615 feet, flowed 30 bbls. of oil an hour. Gas was estimated at 500,000 cu. ft.

Gulf Oil Corp. No. 7 McCormack, C NE SE Section 32-21s-37e, Hardy pool, topped pay at 3,670 feet and after acidizing flowed 95 bbls. of oil in 17 hours, with 350,000 cu. ft. of gas daily. Total depth was 3,765 feet.

Continental Oil Co. No. 2 Britt B-10, C W half NW SW Section 10-20s-37e, Monument field, found pay at 3,950 feet, was bottomed at 3,962 feet and after acidizing flowed 92 bbls. of oil and 748 bbls. of water daily.

In Eddy County, Danciger Oil & Refining Co. completed its No. 1-B Turner, C E half NE SE Section 17-17s-31e, Jackson field, at 3,530 feet, total depth, in lime. Top of pay was found at 3,407 feet and the well flowed 35 bbls. of oil daily through casing.

Elmer J. Fisher No. 1 Foster, C NW NW Section 7-15s-36e, Chaves County wildcat, was dry and abandoned at total depth of 1,281 feet in lime.

Lea County

Fred Turner, Jr., No. 1 Lea Co. State Bank, C SW SW Sec. 30-14-38 (wildcat). C.&P.

Carper-Taylor No. 1 Taylor (wildcat), SW SW SW Sec. 30-16-32. Drlg. 2,415 ft.

Carper Drlg. No. 1 Simon, C NE NE Sec. 29-17-32. Loc.

Continental Oil Co. No. 1-A Sanderson B-14, C N½ NW NW Sec. 14-20-36. W.O.C. 1,443 ft.

Continental Oil Co. No. 5 State H-35, C SW NE Sec. 35-17-34. T.D. 4,150 ft.; W.O.C.

Humble O. & R. Co. No. 2-K State, C NW NE Sec. 32-17-35. T.D. 4,675 ft.; C.O. 4,625 ft. and shot.

Humble O. & R. Co. No. 3-K State, C NE SE Sec. 28-17-35. Drlg. 4,196 ft.

Humble O. & R. Co. No. 4-K State, C NE SE Sec. 32-17-35. C.&P.

Magnolia Pet. Co. No. 1-O State, C NW SW Sec. 33-17-35. T.D. 4,650 ft.; F. 33 B.O. 1st hour.

Magnolia Pet. Co. No. 1-P State, C SW SE Sec. 22-17-35. Drlg. 3,960 ft.

Magnolia Pet. Co. No. 3-J State, C SE NE Sec. 22-17-34. Drlg. 3,260 ft.

Magnolia Pet. Co. No. 26 State-Bridges, C SE SW Sec. 26-17-34. Drlg. 4,554 ft.

Magnolia Pet. Co. No. 27 State-Bridges, C SE NE Sec. 26-17-34. Drlg. 2,855 ft.

Maljamar O. & G. Co. No. 2-B Baish, C NE NE Sec. 27-17-32. T.D. 2,602 ft.; S.D.O.

Maljamar O. & G. Co. No. 2 Mitchell, SW SE SW Sec. 5-17-32. T.D. 460 ft.

Ohio Oil Co. No. 1 State-Warn, C SE NE Sec. 33-17-35. Drk.

Ohio Oil Co. No. 2 State-Staplin, C NE SW Sec. 30-17-35. T.D. 4,710 ft.

Phillips Pet. Co. No. 12 Santa Fe, C NE SW Sec. 28-17-35. T.D. 4,700 ft.; C.O. 4,615 ft.; acdz.

Phillips Pet. Co. No. 15 Santa Fe, C NE NE Sec. 28-17-35. T.D. 4,700 ft.; C.O. 4,604 ft.

Phillips Pet. Co. No. 20 Santa Fe, C SW SW Sec. 27-17-35. Drlg. 4,528 ft.

Phillips Pet. Co. No. 24 Santa Fe, C NE NE Sec. 34-17-35. Drlg. plug 4,143 ft.

Phillips Pet. Co. No. 26 Santa Fe, C NE SW Sec. 29-17-35. Drlg. 4,596 ft.

Phillips Pet. Co. No. 28 Santa Fe, C NE SE Sec. 33-17-35. Drlg. 3,020 ft.

Repollo Oil Co. No. 2 State, Lse. 197, SE NE SE Sec. 6-17-34. Drlg. 4,862 ft.; no shows.

Shell Pet. Corp. No. 1-C State, C NE SE Sec. 24-17-34. T.D. 4,733 ft.; C.O. 4,677 ft.

Shell Pet. Corp. No. 1-V State, C NE SE Sec. 21-17-35. Rng. tbg. 4,680 ft.

Standard Oil Co. of Texas No. 2 State, Lse. 6, C NE SW Sec. 34-17-35. Drlg. 3,668 ft.

Stanolind O. & G. Co. No. 2 State, C SE NW Sec. 1-17-36. Drlg. 4,207 ft.; S.G. 4,180 ft.

Texas Co. No. 1-T State, C SE NE Sec. 25-17-34. T.D. 4,725 ft.; to test on pump.

Twin Oil Corp. No. 1-D State, C SW NE Sec. 30-17-35. T.D. 4,700 ft.; S.D.O.

Fullerton Oil Co. No. 1-A Walker, C SW NW Sec. 18-18-32. Drlg. 3,567 ft.

Phillips Pet. Co. No. 16 Santa Fe, C NW SW Sec. 5-18-35. T.D. 4,750 ft.; C.O. 4,750 ft.; S.S.O.

P. B. English No. 1 Miller, C NE SE Sec. 18-19-32 (wildcat). Drlg. 1,665 ft.

Great Western Prod. Co. No. 2 Bordages, NE SE NW Sec. 33-19-37. T.D. 3,915 ft.; retreat. and swb. 62 B.O.P.D.

Continental Oil Co. No. 4 Sanderson B-14, NE SW NW Sec. 14-20-36. Drlg. 2,520 ft.

Texas Co. No. 17 Lieu-Lands, NW NW SW Sec. 19-20-37. Drlg. 800 ft.

Aloco Oil Co. No. 1 Carson, C SW SE Sec. 28-21-37. T.D. 3,560 ft.; P.B. 3,568 ft.

Bryant-Drilexco No. 2 State, SE SW SE Sec. 12-21-35. T.D. 3,908 ft.; acd. and F. 10 B.O.P.H.

Danglade & Clower No. 1 Corrigan, C NE SE Sec. 33-21-37. Spdg.

Danglade & Clower No. 1 Owen, NW SW SW Sec. 34-21-37. Drlg. 1,630 ft.

Gulf Oil Corp. No. 1-C Leonard, C SE SW Sec. 36-21-36. Drk.

Gulf Oil Corp. No. 2-B Mattern, C SE NE Sec. 31-2-37. Drlg. 3,475 ft.

Magnolia Pet. Co. No. 1 Marshall, C SE NW Sec. 34-21-37. S.D. rprs. 3,195 ft.

John G. Menke No. 2 Alexander, C NE NW Sec. 5-21-37. M.I. rot.

Francis C. Wilson No. 3 State, NW SE NE Sec. 7-21-35. T.D. 3,868 ft.; to drill by pckr. and working barrel.

Stanolind O. & G. Co. No. 4 Hill, C SW NE Sec. 6-21-37. T.D. 3,620 ft.; R.U.S.T.

J. C. Clower No. 1-B Manda, NE NE NW Sec. 28-22-37. T.D. 3,681 ft.; tstg.

Continental Oil Co. No. 1 State F-1A, C W½ SE NE Sec. 1-22-35. T.D. 3,914 ft.; acdz.; no shows.

Continental Oil Co. No. 5 State J-2, C SE SE Sec. 2-22-36. Loc.

Continental Oil Co. No. 5 State E-17, C W½ NW SW Sec. 17-22-36. Est. 30,000,000 cu. ft. gas at 3,780 ft.; drlg. 3,817 ft.

Gulf Oil Corp. No. 3-E Mattern, C NW NW Sec. 12-22-36. Drlg. 3,247 ft.

Olean Pet. Co. No. 2 Farrell, SW SE SE Sec. 22-22-37. T.D. 3,757 ft.; P.B. 3,625 ft.; C.O.

Skelly Oil Co. No. 7 Baker, C NW NE Sec. 27-22-37. Drlg. 2,389 ft.

Skelly Oil Co. No. 5 Simms, C NW SE Sec. 33-22-37. Drlg. 2,848 ft.

Texas Co. No. 2-B Fally, C SE SW Sec. 8-22-37. T.D. 3,720 ft.; P.B. 3,709 ft.; tstg.

Texas Pacific Coal & Oil No. 14-A State, C NW NE Sec. 11-26-36. T.D. 3,681 ft.; drlg. plug.

Walter Donnelly No. 1 Davis, C SE NW Sec. 33-23-37. T.D. 3,600 ft.; tstg.

Great Western Prod. No. 2-B Leonard, C NW NW Sec. 32-23-37. Drk.

Continental Oil Co. No. 4 Jack A-20, C SW NE Sec. 20-24-27. T.D. 3,580 ft.; shot and F. 120 B.O. in 12 hrs.

Continental Oil Co. No. 2 Jack B-37, C SW NE Sec. 27-24-37. Drlg. 3,359 ft.

Humble O. & R. No. 4 Williams, C NW NW Sec. 34-24-37. Drk.

North Shore Oil Corp. No. 3 Woolworth, SW SW NW Sec. 33-24-37. Drlg. 1,235 ft.

North Shore Oil Corp. No. 4 Woolworth, NW NW NW Sec. 33-24-37. Loc.

Parker Drlg. Co. No. 3 Erwin, C W½ NE SW Sec. 35-24-37. T.D. 3,460 ft.; F. 10 B.O. in 8 hrs.; est. 3,000,000 cu. ft. gas.

Phillips and Pure No. 5 Woolworth, C SW SE Sec. 33-24-37. C.&P.

Phillips and Pure No. 6 Woolworth, C NE NE Sec. 33-24-37. T.D. 3,541 ft.; C.O.

Schermerhorn Oil Co. No. 5 Woolworth, NW SW NE Sec. 28-24-37. W.O.C. 3,248 ft.

Schermerhorn Oil Co. No. 6 Woolworth, C SW SE Sec. 28-24-37. W.O.C. 1,427 ft.

Sam Weiner No. 2 Woolworth, SW NW SW Sec. 33-24-37. T.D. 3,565 ft.; F. 120 B.O.P.D.

Weir Drlg. Co. No. 3 Woolworth, NE SW SW Sec. 28-24-37. Fsg. 3,195 ft.

Amerada Pet. Co. No. 1-B Stuart, NW SE NE Sec. 22-25-37. Drlg. 3,070 ft.

Anderson & Prichard No. 5 Wells, C NW NE Sec. 5-25-37. R.U.R.

Anderson & Prichard No. 1 Woolworth, NW NE NE Sec. 17-25-37. Drlg. 1,660 ft.

Culbertson & Irwin No. 3 Henry, SW SW SW Sec. 26-25-37. Drlg. 2,580 ft.

Italo Pet. Corp. No. 1 Carlson, SW NE NW Sec. 26-25-37. Drk.

Italo Pet. Corp. No. 1 Indian B-4, NE NW NW Sec. 4-25-37. Drlg. 2,950 ft.

Italo Pet. Corp. No. 2-B N. M. Pet., SE SW NW Sec. 4-25-37. W.O.C. 1,260 ft.

Phillips and Pure No. 2 Woolworth, C SE NE Sec. 6-25-37. Drlg. 1,920 ft.

Richmond Drlg. Co. No. 2-A State, C SW SW Sec. 2-25-37. Drlg. 3,158 ft.

Sam Weiner No. 3 Smith, C N½ NE SE Sec. 4-25-37. T.D. 3,506 ft.; C.O.; 3,490 ft.

Eddy County

Allen, Fair & Pope No. 1 Snowden, SE NE SE Sec. 36-17-29. Drlg. 1,682 ft.

Aston & Fair, Inc., No. 1 Hudson, C NE NE Sec. 18-17-31. Drlg. 2,774 ft.

W. H. Berry No. 1 Berry, NE NE NE Sec. 24-17-27. Rng. csg. 360 ft.

Hammond & Sons No. 1 Ployhar-State, SW SW SE Sec. 16-17-28. Drlg. 1,745 ft.

J. O. and J. H. Hammond No. 1 Paris, NE NW NW Sec. 5-17-29. S.D.O. 25 ft.

English & Harmon No. 1 Stogner, C NW SE Sec. 31-17-31. T.D. 4,252 ft.; P.B. 4,012 ft.

Flint Prod. Co. No. 1-L Dexter, SE NW SE Sec. 15-17-30. T.D. 3,466 ft.; swb. dry and S.D.; rprs.

F. G. Keyes No. 3 Red Gulch, NW NW NE Sec. 16-17-28. Drlg. 1,775 ft.; S.O. 1,749-64 ft. in sd.

Ohio Oil Co. No. 4 State-McCallister, Sec. 25-17-34. W.O.C. 510 ft.

C. S. Powell No. 1 Smith, NW NW NE Sec. 6-17-29. T.D. 2,500 ft.; S.D. rprs.

Welch & Welch No. 1 State, NE NE SE Sec. 20-17-28. T.D. 1,970 ft.; F. 50 B.O.P.D.

Repollo Oil Co. No. 5-A Parke, NW NE NW Sec. 22-17-30. Drlg. 310 ft.

H. J. Steinberger No. 1 Hastie, SE NE SW Sec. 18-17-38. T.D. 555 ft.; pump 6 B.O.P.D.

Adkinson Oil Co. No. 1 Brainard, SE SW SE Sec. 5-18-27. S.D. rprs. 1,442 ft.

Barney Cockburn No. 1 State-Graham, C NE NE Sec. 16-18-31. Drk.

Farmer & Tallmadge No. 1 Hubbell, NE SW Sec. 4-18-25. T.D. 400 ft.; fsg. bit.

Franklin Pet. Corp. No. 1 Ballard, NE NE SE Sec. 1-18-29. T.D. 2,740 ft.; swdg. at 2,630 ft.

Franklin Pet. Corp. No. 1 Canfield, NW NW NW Sec. 7-18-30. C.&P.

Green Bay Oil No. 1-A Johnson, C SE SE Sec. 11-18-31. Drlg. 3,665 ft.; pay 3,464 ft.; 650 ft. O.I.H.

Harvey E. Yates No. 1 Travis, NE SE, SE Sec. 6-18-29. S.D. rprs. 2,210 ft.

H. W. Martin No. 1 Gates, SW SE SE Sec. 15-18-30. Loc.

Martin Yates No. 1 Saunders, NE NE NE Sec. 12-18-29. R.U. mch.

Carper Drlg. Co. No. 1 Quillen, C NW NE Sec. 12-19-31. S.D.O. 2,765 ft.

Geo. E. Robb No. 1 Cannon, C SW SE Sec. 4-19-30. T.D. 210 ft.; S.D.O.

Geo. E. Robb No. 1 Vandagriff, SW NE Sec. 6-19-31. T.D. 800 ft.; S.D.O.

R. C. Underwood No. 1 Quillen-Bruce, NE NE SE Sec. 4-19-31. Drlg. 3,235 ft.

Martin Yates, Jr., No. 1 Bowers, SW SE SE Sec. 31-19-27. T.D. 1,180 ft.; est. 25-40 B.O.P.D.; tstg.

Trojan Oil Co. No 1 Grant, SW SW NE Sec. 33-20s-25e. S.D.O. 408 ft.

C. F. Ingram No. 1 Page, NE NE SW Sec. 15-21-28. T.D. 2,978 ft.; fsg.
Barnett Oil Dev. Co. No. 1 King, C NW SE Sec. 23-26-30. S.D. rprs. 2,295 ft.

Chaves County

Nay Hightower No. 1 Billingslea, C SW NE Sec. 28-11-30. S.D. rprs. 3,069 ft.; S.O. 2,890 ft.; S.G. 3,010 ft.
New, Russell & Wood No. 1 Sterrett (wildcat), NW SE NW Sec. 29-11-25. T.D. 60 ft.; S.D. rprs.
Tarkenton Bros. No. 1 Peters, SE SE SE Sec. 33-11-25. R.U.R.
Western Minerals, Inc., No. 1 Dow (wildcat), C SW NW Sec. 27-10-30. Loc.

De Baca County

N. E. Woods No. 1 Jones, C NE SW Sec. 17-4n-20. T.D. 620 ft.; S.D. rprs.
James D. Ward No. 1 Summers, SE NE SW Sec. 15-4n-24e. T.D. 680 ft.; S.D.O.

Roosevelt County

Shell Pet. Corp. No. 1 Harwood, C S½ SE SE Sec. 27-7s-35e. T.D. 6,578 ft.; sdy. sh.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 Pajarito, Sec. 22-9n-1e. S.D. 1,100 ft.

McKinley County

The Petroleum Production Co. No. 6 Santa Fe (formerly carried as No. 3), SW NE NW Section 1-17n-9w, Hospah dome, was completed at 1,590 feet in sand at 1,539-90 feet for 206 bbls. first 24 hours through tubing at 1,507 feet. It made 196 bbls. second period and 201 on the third day.

Petroleum Production Co. No. 5 Santa Fe, SE NW NE Sec. 1-17n-9w. S.D. 1,675 ft.

San Juan County

Continental Oil Co. No. 88 Rattlesnake, CNL NE NE Sec. 2-29n-19w. Drlg. 135 ft.; 8⅝-in. at 23 ft.
Jack Amenda No. 1 Schenck, NE NE Sec. 14-29n-13w. Drlg. 650 ft.

San Miguel County

Southwest Drilling Co., Inc., No. 1 Conchas, NW NE Sec. 34-17n-21e. T.D. 1,550 ft.; drlg. plug after setting 13⅜-in.

Valencia County

Joiner Oil Corp. No. 1 San Clemente, C NE SE Sec. 23-7n-1e. Drlg. below 5,000 ft.; S.O. 4,860-4,962 ft.
C. A. Grober et al No. 1 Fuqua, NE NE Sec. 19-5n-3e. Cg. below 1,200 ft.; started cg. at 900 ft.

COLORADO

Archuleta County

Unconfirmed reports of showings of oil in a wildcat 3½ miles southwest of the Price (Gramps) pool last week were clarified by Carl D. Lindstrum, president of the Axelind Oil Co., which is drilling the test approximately in the NE NW Section 12-32n-2e. Last fall the company started some core drilling to obtain geological information and one of these holes was reamed out with a view to going deeper. Various oil and gas showings, together with other findings, caused the company to continue with this hole until it was decided to drill to the Dakotas. The top of the Dakotas was encountered around 2,300 feet, at which point it drilled into water, the hole filling 1,500 feet. A little below 2,300 feet a showing of oil was found, about which there were more or less conflicting reports. However, as a result of this showing another string of pipe was purchased in an attempt to case off the water. Some difficulty was encountered in finding a landing place for the casing until a shell was found at about present total depth and an attempt for a shutoff is now under way. Present depth is 2,340 feet. The shutoff string consists of 5⅞-inch pipe.

Adams County

Derby Dome O. & G. Co. No. 2 Baxter, C SE SW Sec. 2-3s-66w. Digging C. & P.

Boulder County

Reynolds & Rohr No. 1 Thomas, SW SW Sec. 17-1n-70w. Drlg. 1,315 ft.

Fremont County

The Waterville Oil Co. is moving in for a 3,000-foot cable tool test in the Phantom Canon district north of the Canon City shale oil pool, in its No. 1 Persons, NE NE Section 17-18s-69w. Location is half a mile northwest of a well drilled by the same company on a state lease in Section 16 in 1929 to 1935 which was abandoned at 3,033 feet. It is reported to have had the base of the red beds at 2,508 feet where it went into lime. At 2,780 feet it had a show of 145 feet of dark brown 40-gravity oil which was followed by salt (?) water. The Florence-Canon City wells produce from sandy shale in the Pierre.

Waterville Oil Co. No. 1 Persons, CWL NE NE Sec. 17-18s-69w. M.I.M. (first report).

La Plata County

N. Spatter No. 1-X Bryce, SE SW SW Sec. 31-33n-9w. T.D. 2,352 ft.; W. at 2,345 ft; U.R. 8¼-in. from 2,220 ft. for W.S.O.

Logan County

West Plains Dev. Co. No. 1 Sheldon, SE NW SW Sec. 3-10n-55w. Drlg. below 200 ft.

Moffat County

Mountain Fuel Supply Co. No. 1 Wilson, NE NW NE Sec. 22-12n-100. T.D. 2,606 ft.; cmtd. 5-in. liner with 70 sacks; prep. to perf. and test.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NE Sec. 31-36n-17w. T.D. 4,947 ft.; fsg. blt.

Park Count',

South Park Oil Co. No. 1 Leman, NE NE SE Sec. 34-11s-75w. T.D. 6,830 ft.; thawing out W. line.

WYOMING

Big Horn County

Two new operations were reported in the Garland district, Yale Petroleum Corp. No. 2 Yates is in Lot 57, approximately NW SW Section 34-56n-97w, and is an offset to No. 1 Yates, drilled by the Stock Oil Co. in 1936 and completed at 4,206 feet for 50 bbls. an hour as a flowing well from the lime. The other is the same company's No. 1 Sessions, on Lot 53, and approximately in the NW NW Section 34.

Yale Pet. Corp. No. 2 Yates, Lot 57 (NW SW) Sec. 34-56n-97w. B.R. (first report).
Yale Pet. Corp. No. 1 Sessions, Lot 53 (NW NW) Sec. 34-56n-97w. B.R. (first report).
A. L. Rankin No. 1 Karjala-Rankin, C SW NW Sec. 10-54n-94w. Drlg. 660 ft.

Carbon County

Sinclair-Wyo. Oil Co. No. 2-A Mahoney Unit, C SW NE Sec. 34-26n-88w. Drlg. 4,293 ft.; top Embar L. 3,992 ft.; top Tensleep 4,287 ft.

Natrona County

The General Petroleum Corp. No. 1 State, 1¼ miles north of the discovery well on Cole Creek and the second test drilled, is shut down for orders at 8,708 feet after finding the Sundance horizon dry. This formation was not tested in the discovery. It had the top of the basal Sundance at 8,521 feet and went out of it at 8,706 feet. The Lakota, the producing horizon in the well to the south, was found at 8,152-95 feet. Elevation, 5,640 feet.

The Midwest Oil Co.'s annual report for 1938 says the company produced 1,292,584 bbls. net of light oil in Salt Creek during the year, which compares with 1,426,097 in 1937, a decline of 133,513 bbls., or 9.36 per cent. Decline in 1937 was 2.5 per cent. The company, joint with Mountain Producers Corp., drilled five additional Tensleep sand wells in 1938, making a

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total of nine wells in that formation. The oil is black and used only for fuel purposes and no additional drilling is contemplated at this time. The company sold 84,248 bbls. of Tensleep oil during the year. Net earnings were $931,623, compared with $944,544 in 1937.

Richland Corp. No. 1 State, SW NW Sec. 36-36n-81w. R.U.C.T.
General Pet. Corp. No. 1 State, NW NE SE Sec. 16-35n-77w. S.D.O. 8,708 ft.

Niobrara County

The Continental Oil Co. is going back into an old well on the Ant Hills dome, midway between the Lance Creek and Mule Creek fields, and deepen it to the Sundance and probably the Leo sands. This well, No. 1 Delahoyde, was completed as a discovery in March, 1928, and has been shut in ever since with the exception of a test for a period of one month in April, 1928, when it made 954 bbls. Location is in the NE NE Section 25-37n-63w. It was drilled to 4,118 feet and made 123 bbls. in 18 hours on the pump. The oil is a heavy crude. Sand at 3,945-55 feet may be the Muddy, but probably is the Dakota. Another sand was found at 3,987-4,040 feet. Elevation is 4,156 feet. A west offset had approximately the same show for a producer, but the oil was cased off and hole continued to 4,257 feet.

The Ohio Oil Co. No. 1 Leo-OPC-7, NW NW SE Section 35-36n-65w, the most easterly well in Lance Creek drilled to the Leo sand, and which was completed at 5,641 feet in 1937 as a small producer, found water upon drilling deeper to 5,673 feet, and was plugged back and completed as a producer in the Sundance. Casing was perforated at 4,311-15 feet with 12 holes and at 4,304-08 feet with 12 holes, and well made 190 bbls. per day from that horizon. This marks an extension of the Sundance area more than a mile to the east from the nearest producer in that horizon and probably will result in considerable Sundance sand development.

F. W. Clifford, of Minneapolis, is reported to have acquired an option on the Holley Development Co.-A. B. Cobb Novick permit on 240 acres out of the west half of Section 6-35n-65w, and C. L. Price 40 acres in NW NW Section 7. Consideration was not named, but it is reported in excess of $1,000,000. Clifford interests operate as the Wyshawn Oil Co. in the Shawnee district in Converse County and are drilling a deep test in the old Torchlight field in the Big Horn basin.

Continental Oil Co. No. 1 Delahoyde, CNL NE NE Sec. 25-37n-63w. T.D. 4,118 ft.; R.U.R. to D.D.
Ohio Oil Co. No. 3 Agnes Rohlff, C SE NE Sec. 32-36n-65w. T.D. 3,958 ft.; cmtg. off sd. at 3,966-74 ft. to D.D.
Continental Oil Co. No. 3-B Dielman, SW SE NW Sec. 8-35n-65w. B.R.
Ohio Oil Co. No. 11 Putnam, SE SE SW Sec. 33-36n-65w. Loc.
Continental Oil Co. No. 2 E. Rohlff, NW SE NW Sec. 32-36n-65w. Drlg. 1,880 ft.
Minnelusa Oil Corp. No. 2 Joss, SE NE SW Sec. 6-35n-65w. T.D. 3,989 ft.; R.U.R. to D.D.
Minnelusa Oil Corp. No. 1 H. & M.-5 NW NE SE Sec. 7-35n-65w. Drlg. 1,980 ft.
Argo Oil Co. No. 3 Ford, SW SW NW Sec. 33-36n-65w. Drlg. 4,960 ft.; top Converse 4,721 ft.; some W. and dead oil.
Ohio Oil Co. No. 5 Rohlff, 100 ft. E of C E½ Sec. 32-36n-65w. T.D. 3,933 ft.; rng. tbg. to test; top first basal Sundance, 3,825 ft.; second basal Sundance, 3,845 ft.; 7-in. cmtd. at 3,846 ft.
F. F. Hintze et al No. 1 Wright-Govt., C NW SE Sec. 30-36n-63w. Drlg. 4,785 ft.
Fall River Roy. & Prod. Co. No. 1 Govt., CSL SE SE Sec. 35-40n-61w. T.D. 1,000 ft.; fsg. bailer.

Park County

Blue Ridge Oil Co. No. 1 Mau, NE NE SW Sec. 25-58n-98w. Drlg. 330 ft. in 10-in. hole.

Sublette County

Texas Co.-Frontier Pet. Co. No. 1 Govt. Unit, SE SE SW Sec. 1-28n-114w. T.D. 6,247 ft.; prep. to run 7-in.

Sweetwater County

Sinclair-Wyoming Oil Co. No. 83 Lost Soldier, NW NE NE Sec. 10-26n-90w. Loc. (first report).
Sinclair-Wyo. Oil Co. No. 82, NE SW SW Sec. 11-26n-90w. T.D. 2,214 ft.; base Sundance 2,205 ft.; prep. to run 5½-in.

Uinta County

Stove Creek Oil Co. No. 2 Govt., C SW NW Sec. 26-14n-119w. Drlg. 680 ft.

Weston County

An extension of the deep sand area of the Osage pool more than a mile to the west is imminent in Whedon and others No. 1 Government, C SW NE Section 21-46n-64w, which is showing for a producer in the Muddy sand topped at 3,838 feet and cored to 3,888 feet. Cores from 50 feet of sand showed saturation, but casing will be run before any estimates of capacity are made. One and one-half miles to the northeast, on the western edge of previous develop-

(Continued on Page 98)

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Texas and Louisiana Gulf

By
NEIL WILLIAMS

Open Pool Between Two Dry Holes in Galveston County

HOUSTON, Tex., Mar. 13.—The testing of Sun Oil Co. No. 2 Cade, a prospective pool opener in the Bolivar Peninsular area, near the shoreline of the Gulf of Mexico in Galveston County, and the discovery of a new sand in the Goodykoontz portion of the Fairbanks field, Harris County, were holding the attention of operators in the Gulf Coast district at the close of the past week.

Sun Oil Co. No. 2 Cade opened an oil field on Bolivar Peninsula, near the shoreline of the Gulf of Mexico, Galveston County, as it flowed 146 bbls. of 34-gravity oil in 12½ hours through a three-sixteenths inch choke under a tubing pressure of 2,150 pounds and casing pressure of 350 pounds. The hole is bottomed in the Frio formation at 8,009 feet and production was obtained by perforating casing at 7,748-78 feet. The well is in the Dickson Survey, midway between two dry holes drilled last year.

In the Goodykoontz area, northeast of the Fairbanks field, Harris County, Union Producing Co. No. 1 Murphy, 1,800 feet northeast of the same company's No. 1 Goodykoontz, a distillate producer, is believed to have uncovered a new sand as a result of a drill-stem test at 7,009-28 feet which tested 11 thribbles of oil and 115 pounds of working pressure in eight minutes. The sand was found approximately 150 feet higher than the Goodykoontz producer and at the close of the week the hole was being carried deeper in search of other sands.

In the same area, and about 1 mile northeast of the above well, Kirby Petroleum Co. No. 1 Daniel perforated casing at 7,203-11 feet and is flowing into pits through a quarter-inch choke, making an estimated 2,500,000 cu. ft. of gas and a slight amount of distillate. Tubing pressure was 2,490 pounds and casing pressure 2,475 pounds. This well was drilled to 7,252 feet and casing was cemented after 21½ feet of oil sand was cored at 7,227-48½ feet. A previous drill-stem test through perforated casing at 7,237-39 feet showed salt water.

Approximately 2½ miles southwest and about a half mile north of the Satsuma field, the crew at Williams & Thompson No. 1 Bechne perforated casing at 6,853-59 feet and the well is flowing about 1 bbl. of fluid per hour through a three-sixteenths inch choke, with tubing pressure 425 pounds and casing pressure 400 pounds. The well may be killed and the casing reperforated in an attempt to increase the flow.

The northeast side of the League City field, Galveston County, was defined with the abandonment of Phillips Petroleum Co. No. 1 Brittnacher which was bottomed in a salt-water sand at a total depth of 9,217 feet. Offsetting the discovery well to the north, Phillips Petroleum Co. No. 1 J. C. Ott perforated casing at 8,242-60 feet and the well is flowing into the pits, making an estimated 12 bbls. of fluid per hour through a three-sixteenths inch choke. Sixty-six per cent of the fluid is oil, and the remainder is wash water, having a brackish taste. Tubing pressure is 725 pounds and casing pressure 950 pounds. Northwest of the discovery well the same company's No. 1 Stewart Guaranty Co. is coring a salt-water sand below 10,081 feet. Shaly sand showing oil was cored at 9,650-66 feet, gas sand at 9,823-43 feet, oil sand at 9,843-50 feet, salt water sand at 9,850-66 feet, and sand and streaks of shale, showing oil, at 10,040-65 feet.

Four Wildcats Started

Locations for four wildcats were reported for the district. In the southern part of Wharton County, Humble Oil & Refining Co. is building road to No. 1 J. D. Ecker, B.S.&F. Survey No. 7, about 2 miles southeast of Helmerich & Payne No. 1 J. L. Myatt which was abandoned last week at 6,510 feet. Across the line in Matagorda County, and southwest of the town of Pledger, Pierce Estate, Inc., has started drilling No. 1 fee, in the B. J. Rawls and O. H. Stout Survey. This is a projected 8,000-foot hole. In the Westmoreland area, Harris County, Midwest Royalty Co. staked location for No. 1 Westmoreland Farms in Lot 12, Block 39, Westmoreland Farms subdivision in the James Wells Survey. The well is west of Bellaire, which adjoins the Houston City limits. In Tyler County and 1½ miles south of Rockland in the F. G. McReynolds Survey, J. C. Bonham staked location for a Wilcox sand test on the Kountz Investment Co. lease.

In the Katy gas field, Waller County, which has been developed thus far by Stanolind Oil & Gas Co., location was made by Magnolia Petroleum Co. for No. 1 Allsup Estate, in Section 108, E. B. Conch Survey. The well is approximately a half mile south of Stanolind Oil & Gas Co. No. 1 Hargraves on the southeast side of the field.

Humble Oil & Refining Co. No. 3 Hutcheson, a west outpost well in the Clear Lake field, Harris County, flowed 127 bbls. daily plus 5 per cent salt water through an eighth-inch choke under a tubing pressure of 1,385 pounds and casing pressure 2,275 pounds. The well is producing from sand at 5,834-44 feet, total depth.

Coastal Louisiana

A new oil field for the Louisiana sector of the Gulf Coast district was indicated as Shell Petroleum Corp. No. 1 H. Schexneyder located on the La Price prospect, St. James Parish, recovered 1,600 feet of 32-gravity oil on a drill-stem test at 10,375-90 feet. The test was made through a quarter-inch choke and working pressure built up to 120 pounds. This is the third showing logged in the Miocene section and at the close of the week the hole was being carried deeper in search of other sands.

The prospective pool opener is southeast of the town of Donaldsonville in Section 38-12s-15e, almost due west of the Convent dome which was proven productive last year to open the first production in the parish. Shell Petroleum Corp. controls a block of several thousand acres around the well which was leased in 1937 after the area had been worked with reflection seismograph instruments.

Locations for three more Wilcox sand (Tertiary) tests were made along the northern tier of parishes in coastal Louisiana, which is receiving an extensive leasing and geophysical program following the opening of the Eola field in Avoyelles Parish. In the Merryville area, Beauregard Parish, Atlantic Refining Co. staked location for two wells on its block of approximately 6,000 acres. No. 1 Lutcher Moore Lumber Co. is to be drilled in the southeast quarter of the northwest quarter of Section 22-3s-11w, while No. 1 Rice Land & Lumber Co. is located in the northeast quarter of Section 22-3s-11w.

In the Cheneyville area, Rapides Parish, Sid Richardson is building road to No. 1 Well Co., Ine., in Section 55-1s-2e. The well is being drilled on a farmout lease from the Texas Co. In Rapides Parish, Gulf States Exploration Co. is preparing to spud No. 1 Erwin & Bishop, Section 35-1n-3w, while in Pointe Coupe Parish, Falcon-Seaboard Oil Co. is rigging up No. 1 J. H. Hobgood.

In the Eola field, Avoyelles Parish, Sid Richardson No. 2 Haas Investment Co., Section 7-2s-3e, topped the Sparta sand at 7,345 feet and cored sand with an oil odor at 7,475-81 feet. It is coring in shale below 8,085 feet and should reach the Wilcox sand by the end of the week. The same operator's No. 3 Haas is coring in shale below 7,830 feet.

Martex Petroleum Corp. No. 1 Falgout Holding Co., Inc., southwest of the Golden Meadows discovery well in Section 9-19s-22e, has apparently found a shallower sand but is coring ahead for the discovery horizon. Shale and sand showing oil was cored in the Miocene at 2,636-45 feet and oil sand was cored at 2,645-54 feet. No drill-stem test was attempted. In the same area, in Section 77-19s-21e, Texas Co. No. 1 L. L. & E. Golden Meadows is bottomed at 10,751 feet and 9⅝-inch casing was cemented at 10,744 feet. The size of the casing indicates that the hole will be carried much deeper. The same company's No. 1 State-Catfish Lake was abandoned as dry at a total depth of 10,281 feet.

The Bancroft field, Beauregard Parish, was extended to the southeast as Republic Production Co. completed No. 1 Louis Whitman for an initial production of 378 bbls. daily, flowing through a three-sixteenths inch choke. The hole is bottomed at 7,371 feet and the well was completed through perforated casing at 7,365-69 feet.

On the Lake Mongoulois salt dome, St. Martin Parish, Texas Co. is driving piling for No. 7 State, in Section 10-10s-9e. Distillate production was opened on this structure in December of last year by the company's No. 6 State, completed at 9,675-95 feet.

Vendome Petroleum Corp. No. 1 Kenilworth, a prospective pool opener for St. Bernard Parish is drilling in shale below 11,170 feet after coring gas sand at 10,990-11,050 feet. This is the fourth sand to be cored. Other sands are logged at 10,597-10,650 feet and at 10,809 feet.

In St. Martin Parish, Roper & Todd let contract for a 9,000-foot test to be drilled on the Pine Alley prospect, 3 miles northeast of St. Martinsville in St. Martin Parish. The well is on the Levert Plantation lease, 660 feet east of the northwest corner of Lot 40 in Section 42-10s-7e. The area has been worked extensively with refraction, torsion balance and reflection instruments and the structure is reported to have 150 feet of closure. Protection acreage is held by Continental Oil Co., Magnolia Petroleum Co. and Sun Oil Co.

Superior Oil Co. No. 5 State, located in the Creole field offshort from Cameron Parish in the Gulf of Mexico, is coring in shale below 7,010 feet. Shale with streaks of sand showing oil was cored at 6,650-55 feet, sand and shale with a slight show of oil at 6,692-6,702 feet and sand with an oil odor at 6,870-99 feet.

COMPLETIONS IN PROVEN FIELDS

Brazoria County

Hastings field: Humble Oil & Refining Co. No. 4 Lerew, sand 6,050-60 feet, 159 bbls., quarter-inch choke. Lockridge field: Dr. Charles M. Lusk No. 5 Ramsey State Farm, perforated casing 6,363-64 feet, 222 bbls., eighth-inch choke. Old Ocean field: Harrison & Abercrombie No. 1 Buck, 10,554 feet, 250 bbls., various chokes. West Columbia field: Texas Co. No. 11 J. G. Phillips, sand 5,658-5,720 feet, 476 bbls., quarter-inch choke.

Chambers County

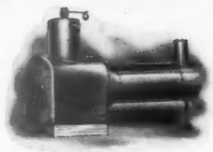
Anahuac field: Humble Oil & Refining Co. No. 7 Wilcox, 7,095 feet, 336 bbls., quarter-inch choke.

Fort Bend County

Thompson field: Humble Oil & Refining Co. No. 44-AX Lockwood-Sharp, sand 3,479-3,510 feet, 289 bbls., quarter-inch choke.

Galveston County

League City field: Midstates Oil Co. No. 2 Holmes, perforated casing 8,556-95 feet, 746 bbls., quarter-inch



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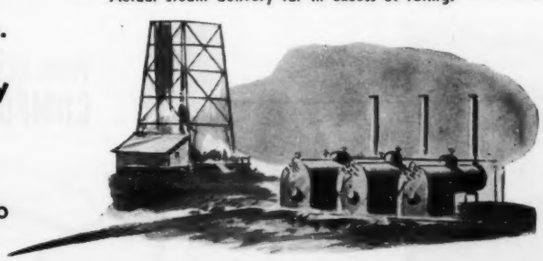

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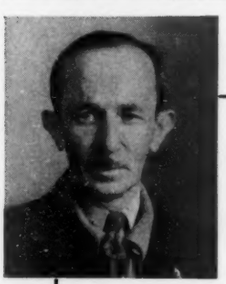

Harry Hanbury

This is intended to clarify a matter of identical names. The man pictured here is Harry Hanbury, a producer of Shreveport, Louisiana, residing in California and has no connection, whatsoever, in business or blood relation with the Harry Hanbury of New York City and Tulsa, who is a buyer of oil royalties.

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choke. League City field: Phillips Petroleum Co. No. 1 Brittnacher, 9,217 feet, abandoned.

Harris County

Clear Lake field: Humble Oil & Refining Co. No. 3 Hutchinson, sand 5,834-43 feet, 127 bbls. oil, plus 8 per cent salt water, eighth-inch choke. Eureka field: Jack Frazier No. 5 Vollmer-Neiman, perforated casing 8,028-58 feet, distillate producer. Housh & Thompson No. 1 Helberg, perforated casing 7,694-98 feet, 33 bbls. oil in 14 hours, 5/64-inch choke. Fairbanks field: Amerada-Petroleum Corp. No. 9 Mills, perforated casing 6,835-37 feet, 130 bbls., eighth-inch choke. Amerada Petroleum Corp. and others No. 1 E. S. Post, perforated casing 6,828-36 feet, 82 bbls., eighth-inch choke. Amerada Petroleum Corp. and others No. 4 Silverberg, perforated casing 6,857½-61½ feet, 121 bbls. per day, eighth-inch choke. Amerada Petroleum Corp. and others No. 1-B Spaulding, perforated casing 6,830-35 feet, 93 bbls., eighth-inch choke.

Amerada Petroleum Corp. and others No. 6 R. C. Smith, perforated casing 6,847-50½ feet, 150 bbls., eighth-inch choke. Amerada Petroleum Corp. and others No. 3 Thompson, perforated casing 6,844½-47½ feet, 146 bbls., eighth-inch choke. Amerada Petroleum Corp. and others No. 4 E. M. White, perforated casing 6,846½-49½ feet, 164 bbls., eighth-inch choke. R. E. Beamon and others No. 1 Mahoney, perforated casing 6,821½-25½ feet, 144 bbls., eighth-inch choke. H. B. Ownby No. 2 E. M. White, sand 6,838-50 feet, 147 bbls., eighth-inch choke. Friendswood field: Humble Oil & Refining Co. No. 10-B Goodwin, sand 5,995-6,044 feet, 592 bbls., quarter-inch choke. Humble Oil & Refining Co. No. 1 Anderson, sand 5,897-6,046 feet, 600 bbls., quarter-inch choke. Humble Oil & Refining Co. No. 14-B Humble-West fee, sand 5,795-6,039 feet, 600 bbls., quarter-inch choke.

Liberty County

Hardin field: Gulf Oil Corp. No. 4 Tullos, sand sand 7,613-26 feet, 89 bbls., eighth-inch choke.

Montgomery County

Conroe field: Houston Oil Co. No. 6 H. N. Moore, sand 5,030-5,113 feet, 591 bbls., quarter-inch choke.

Orange County

Orange field: Ryan and others No. 4 Chesson, sand 5,944-68 feet, 563 bbls., quarter-inch choke.

West Texas Fields

(Continued from Page 82)

20 bbls. Ed. Selvidge No. 3-A fee, dry and abandoned at 1,230 feet. Thomas No. 1 Newton, temporarily abandoned at 200 feet.

Comanche County

Howard No. 1 Union Central, dry and abandoned at 438 feet. Plains Production Co. No. 1 Runkle, dry and abandoned at 501 feet.

Jones County

Fain-McGaha Oil Corp. No. 2 Shaheen, 1,879-93 feet, 505 bbls.

Shackelford County

Rhodes & Higher No. 16 Denis, dry and abandoned at 1,621 feet.

N. Y.-Penna. Gas Fields

(Continued from Page 73)

All other New York drilling is in Steuben County. Sylvania Corp. is drilling at 3,346 feet on the Della Calhoun farm, New York State Natural Gas Co., at 1,098 feet on the Parks No. 3, and Hanley & Bird are building the rig for No. 2 on the Woodward farm in Woodhull Township. New York State Natural Gas Co., down 1,162 feet on the William Preece farm, is drilling the only well spudded in the new Cameron Township area but Hanley & Bird have a location on the Lloyd Hall farm, Belmont Quadrangle Drilling Co. is building the rig on the Andrew Taft farm, New Penn Development Co. is building the rig on the Sylvia Allen and others farm and New York State Natural Gas Co. has a location on the Herbert Thompson farm. New Penn Development Co. and others' well on the E. G. Cady farm in Troupsburg Township is drilling at 1,448 feet.

Kansas Developments

By
DAL DALRYMPLE

Topeka Lime Yields 40 Bbls. of Oil an Hour to Open Pool

The search for new oil reserves in Kansas continues unabated, several new wildcats and outposts that will extend proven areas if oil is found being announced the past week. Two new pools were opened and extensions given three producing areas during the week.

The new wildcats include: Lauck & Moncrief No. 1 Conneaughley, Section 18-24-13w, 4 miles southwest of St. John in Stafford County; Cameron & Spencer No. 1 Fields, NE NE NW Section 4-28-2e, southeast of the Eastborough pool in Sedgwick County; P. T. Grimes No. 1 Beller, SW cor. Section 10-12-15w, east of the Fairport pool, Russell County; York State Oil Co. No. 1 Marchand, SE NE NE Section 24-20-12w, Barton County; and Gulf Oil Corp. No. 1 Dolecheck, C N half NE SW Section 24-16-12w, west of the Prusa pool, Barton County.

A pool was opened in Butler County at Hay, Holl and Table Mesa Oil Co. No. 1 Ferrell, SW NW NE Section 28-28-8, 4 miles southeast of Beaumont in the southeastern part of the county. It found Mississippi lime at 2,635 feet, first oil at 2,647 feet, and 400 feet of 42-gravity oil rose in the hole from 2,685-89 feet. Seven-inch casing was set at 2,636 feet and the big casing was to be pulled preparatory to testing. This is the first wildcat to be drilled in Kansas by the Table Mesa company, a Denver, Colo., concern.

Paul Martin and V. H. Hearing No. 1 Feltes, NW SW SE Section 8-16-12w, wildcat 6 miles northeast of Susank in Barton County, opened a Topeka lime pool. Top of the lime was 2,680 feet, total depth 2,900 feet It started off with 12,000,000 cu. ft. of gas daily and two hours later began flowing at the rate of 40 bbls. of 35.2-gravity oil an hour, according to a report from the field. It flowed into pits while tanks were being erected. Operators planned to underream and cement casing for completion test. Location is on a Sinclair Prairie Oil Co. farmout. West offset location is owned by the Texas Co. Nearest production is in the Beaver pool, five-eighths mile southeastward.

Wildcat Operations

Sinclair Prairie Oil Co. No. 1 Oeser, SE SE SW Section 17-16-11w, was completed as a discovery gasser in Lansing-Kansas City lime. Location is about one-half mile northwest of the Prusa oil pool in Barton County. It found lime at 3,076 feet, pay at 3,133-42 feet, was bottomed in quartzite at 3,262-63 feet, was acidized and produced 28,500,000 cu. ft. of gas.

Bridgeport Machine Co. No. 1 Froelich, C W half W half SW Section 34-12-16w, wildcat three-fourths mile northwest of the Emmeram area in Ellis County, topped Kansas City lime at 3,245 feet, Arbuckle lime 3,517 feet, and was dry and abandoned at 3,540 feet, total depth.

Barnsdall Oil Co. No. 1 Krehbiel, NE cor. Section 18-25-5w, 3 miles southwest of the Yoder pool in Reno County, topped Viola lime at 3,832 feet, Simpson horizon at 3,863 feet, Arbuckle lime at 3,954 feet and was dry and abandoned at 4,000 feet, total depth.

Frank Hudson No. 1 Fulton, NE NE SE Section 35-28-1e, wildcat in Sedgwick County, was reported shut down at 2,356 feet, total depth.

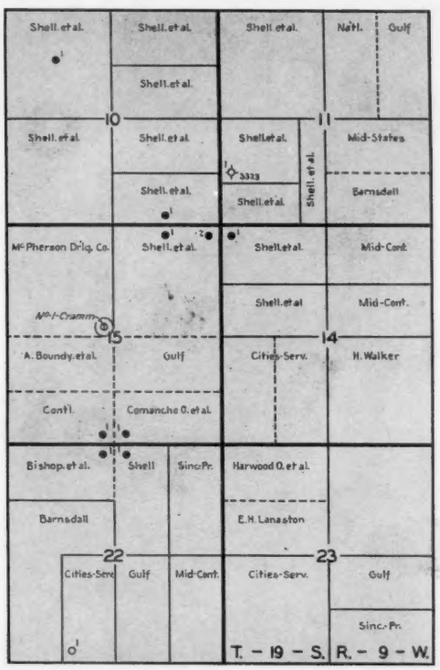
First reports of new wildcats in Kansas: Phillips Petroleum Co. No. 1 Proffitt, C E half NE NE Section 8-20-9w, Rice County, location; Gulf Oil Corp. No. 1 Dolecheck, C N half NE SW Section 24-16-12w, Barton County, cellar; Cameron & Spencer No. 1 Fields, NE NE NW Section 4-28-2e, Sedgwick County, moving in material; Lauck & Moncrief No. 1 Connaughley, SW cor. Section 18-24-13w, Stafford County, location; Lloyd, Frost & Study No. 1 Jones, SE SW NE Section 2-31-3e, Cowley County, rigging up rotary.

Cowley County

Two of the year's bigger producers in Kansas were completed in the Hittle pool, Cowley County, the past week.

Hartman & Blair No. 3 Waite, SE SE NW Section 21-31-4, pumped and flowed 2,058 bbls. of oil in eight hours and made potential of 6,730 bbls. Production was from Arbuckle lime at 3,316-23 feet, total depth.

Texas Co. No. 8 Hittle, NW NW SE Section 21-31-4, penetrated Arbuckle lime from 3,268 feet to 3,286



Midcontinent Map Co., Wichita

McPherson Drilling Co. and others No. 1 Cramm, Section 15-19-9w, was showing oil and may unite the Cramm and North Cramm pools, Rice County

feet, total depth, pumped and flowed 1,744 bbls. of oil in eight hours and made daily potential of 5,233 bbls.

Stafford County

Stanolind Oil & Gas Co. No. 9 Hartnett, C W half W half NW Section 13-24-11w, Zenith field, Stafford County, found Misener sand at 3,760-80 feet, was bottomed at 3,781 feet, flowed 47 bbls. of oil in four hours and made daily potential of 581 bbls.

Same company's No. 8-B Ferris, NW SE NW Section 23-24-11w, was an abandoned location.

Sinclair Prairie Oil Co. No. 9 Krey, C E half E half NE Section 14-24-11w, was a location. Continental Oil Co. No. 1 Russell, SE SE NW Section 13-25-13w, was a location.

Barton County

A large producer was completed in the Barton County sector of the Silica field at Arvin & Bennett No. 4 Steckel, SE SW SW Section 1-20-11w. It had Arbuckle lime at 3,267-72 feet, total depth, pumped 878 bbls. of oil in eight hours and made potential of 2,635 bbls., naturally.

Shell Petroleum Corp. No. 1 Kowalsky, NE NE SE Section 18-20-11w, Clawson pool, swabbed 431 bbls. of oil in five and one-half hours and made daily potential of 969 bbls. It found Arbuckle lime at 3,289-3,311 feet, total depth.

New operations in Barton County: Broderick & Gordon No. 1 Hendricks, NW NW SW Section 17-20-11w, moving in material; Sinclair Prairie Oil Co. No. 1-A Redetzke, SW cor. Section 16-16-11w, location; Harbor Drilling Co. No. 1 Deutsch, C W half W half NE Section 9-16-13w, location; Western Kansas Oil & Refining Co. No. 2 Linsner, C E half E half Section 3-17-13w, waiting on cement at 186 feet.

Estimated Daily Production

Estimated daily production for Kansas for the week ending March 11, and for the preceding week, was as follows:

	Barrels	
	Mar. 11	Mar. 4
Oxford City	1,175	1,000
Burrton	9,025	8,650
Ritz-Canton	6,450	6,250
Graber	2,575	3,375
Hollow-Nikkel	3,350	2,250
Lerado	400	775
Voshell	1,825	1,625
Wellington	2,275	2,000
Ellsworth County:		
Lorraine	1,675	1,775
Other pools	665	975
Rice-Barton counties:		
Bloomer	1,900	1,475
Chase	4,150	4,250
Geneseo	3,025	3,650
Raymond	550	500
Silica	6,975	8,550
South Silica	1,425	1,900
Keesling	250	1,075
Miscellaneous Rice	5,910	9,330
Miscellaneous Barton	5,150	7,305
Wherry	2,050	2,850
Russell County	19,050	21,000
Sedgwick County	3,900	3,275
Ellis:		
Bemis	5,525	3,300
Miscellaneous	2,675	1,710
Kingman County	620	425
Stafford County	3,320	4,520
Greenwood County	8,950	8,975
Butler County	18,525	18,625
Other fields	15,635	13,510
Total Kansas	139,000	144,900

Rice County

Cities Service Oil Co. No. 1 Pulliam, NW NE SE Section 33-19-9w, Campbell pool, Rice County, topped Arbuckle lime at 3,191 feet, was bottomed in lime at 3,224 feet, pumped 375 bbls. of oil in eight hours and made potential of 1,126 bbls.

Texon Oil Co. No. 2 Peterson, NW SW SE Section 10-20-9w, Keesling pool, pumped 179 bbls. of oil with 40 bbls. of water in eight hours and made potential of 538 bbls. of oil, with 120 bbls. of water. Production was from Arbuckle lime at 3,228-32 feet, total depth.

Okan Oil Co. No. 1 Campbell, NW SW NW Section 27-19-9w, northwest side of Campbell pool, topped Lansing lime at 2,865 feet, Arbuckle lime 3,216 feet and was dry and abandoned at 3,256 feet, total depth.

Gulf Oil Corp. No. 4 Stout, SE NE NE Section 6-18-10w, was a rotary rig.

Ellis County

Murphy Oil Co. completed a big producer in the Bemis field, Ellis County, at No. 4 Rumsey, SE NE SW Section 23-11-17w. It found Arbuckle lime at 3,407-16 feet, total depth, and made 24-hour potential of 3,500 bbls. of oil.

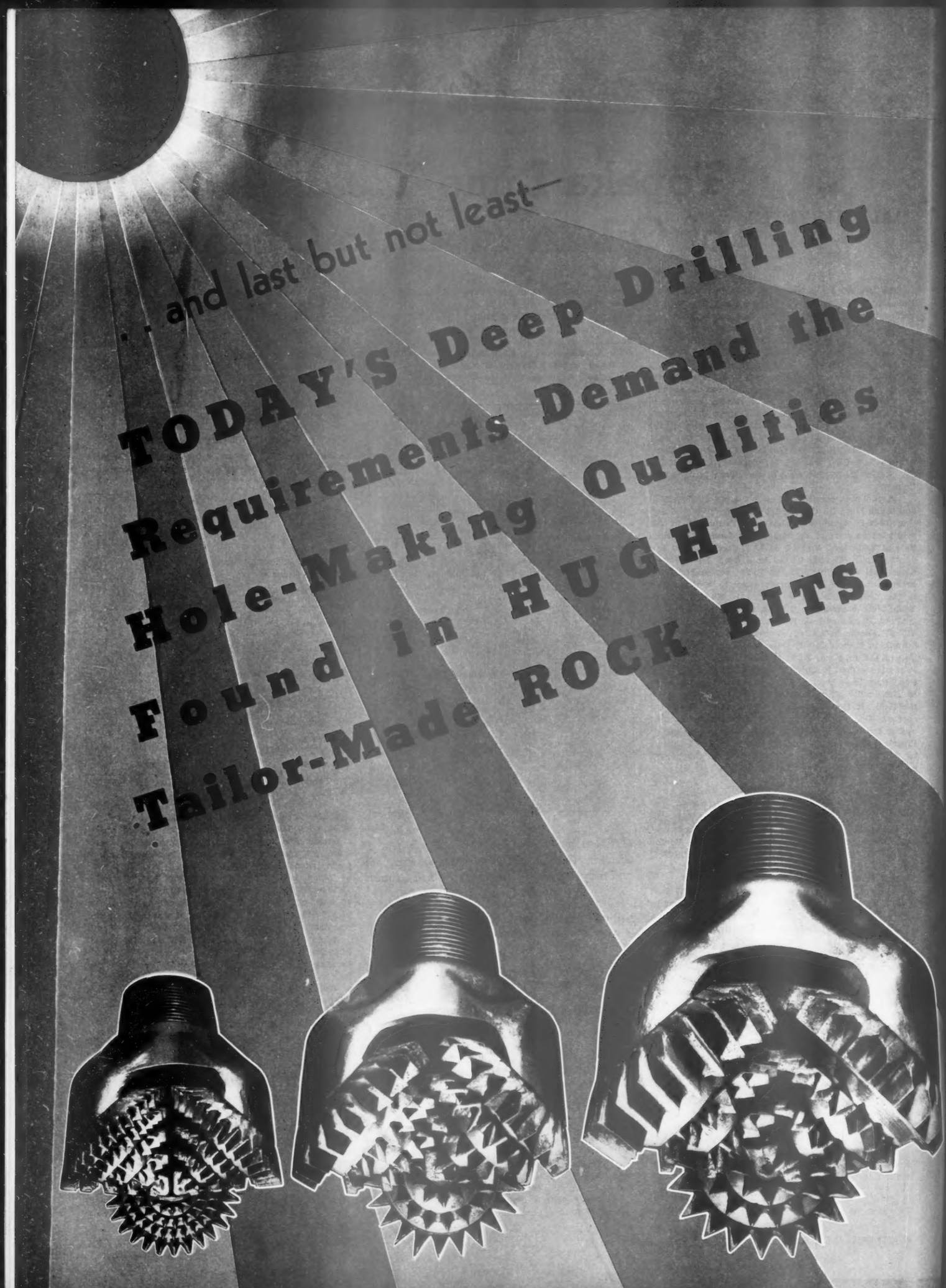
J. J. Hall No. 12-B Oswald, NW SW SE Section 11-12-16w, Blue Hill area, had Topeka lime at 2,809-3,030 feet, total depth, pumped 151 bbls. of oil in eight hours and was completed with potential of 452 bbls.

British American Oil Producing Co. No. 2 Karlin, NE NW NW Section 13-12-18w, was rigging up rotary.

Ellsworth County

Continental Oil Co. No. 1 Janzen, C W half W half

(Continued on Page 98)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TODAY'S Deep Drilling Requirements Demand the Hole-Making Qualities Found in HUGHES Tailor-Made ROCK BITS!

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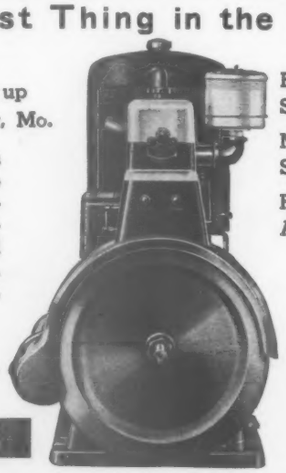

Electric Starting

Manual Starting

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5000
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NE Section 27-17-8w, Edwards area, Ellsworth County, topped Arbuckle lime at 3,291 feet and was dry and abandoned at 3,452 feet, total depth.

Central Petroleum Co. No. 1 Splitter, C E half E half NW Section 19-17-9w, was a location.

Barber County

Pryor & Lockhart No. 1-D Gant, NW cor. Section 17-31-13w, Lake City area, Barber County, found Arbuckle lime at 4,607 feet and was dry and abandoned at 4,616 feet, total depth.

Butler County

C. B. Davis No. 1 Chinn, SE NW NW Section 24-28-7, Lietzke area, Butler County, topped Mississippi lime at 2,750 feet and was dry and abandoned at 2,810 feet, total depth.

Rex & Morris No. 1 Sutter, SE SE NE Section 7-28-7, was drilling below 250 feet.

New Tests Reported

In Graham County, Continental Oil Co. No. 1 Trexler, C E half W half NW Section 15-9-21w, and same company's No. 1 Kolste, NE NE SE Section 16-9-21w, were locations in the Morel district.

In Russell County, Cities Service Oil Co. No. 1 Esfield, NW cor. Section 22-15-13w, was a location; Mid-Continent Petroleum Corp. No. 2 Ochs, C N half S half NE Section 35-15-14w, was moving in material.

In the Zenith field but on the Reno County side, A. M. Landon No. 1 Union Life, SW SW SW Section 7-24-10w, was moving in material.

In Greenwood County, Sinclair Prairie Oil Co. No. 57 Browning, C W half W half Section 20-22-10, was a location.

Rocky Mountain Area

(Continued from Page 91)

ment, the Federal Oil Co. No. 5, SE cor. Section 15, was completed in 1933 as a flowing well, making 125 bbls. per day. Another well was drilled farther to the south which was an average producer. There are a few producers in the center of the east half of Section 16, a mile to the north, and offsetting these on the north were a string of dry holes.

F. P. Dilger et al No. 1, CEL SE SE Sec. 25-46n-64w. R.U.R. (first report).
Selby & Langford No. 2, NW SE NE Sec. 6-46n-63w. Drlg. below 80 ft. (first report).

MONTANA

J. W. Johnson, president of the Producers Refining Co., of Shelby, issued a statement confirming reports of negotiations between Vacuum Oil Co., Glacier Production Co. and Producers Refining Co. looking toward the erection of one refinery by the Glacier company at Cut Bank which would handle crude for all three companies under a processing agreement. This would eliminate the necessity of building a second plant at Shelby. Processing of crude in another company's refinery under agreed specifications, thereby doing away with duplicate construction, has been worked out in several instances during the past year or two in Wyoming and Utah.

Glacier County

Tarrant-Wiley No. 3 Jones, SW NW SW Sec. 31-34n-5w. R.O.G. (first report).
Tarrant-Long No. 7 Miller, NE SW NE Sec. 24-34n-6w. Drlg. 220 ft.
Glacier Prod. Co. No. 1 Bliesener Unit, SE SE NE Sec. 3-33n-5w. Cmtd. 10¾-in. at 403 ft.; W.O.C.
Glacier Prod. Co. No. 4 Simero, C NE NW Sec. 5-33n-5w. Drlg. 1,795 ft.
Yukon Oil Co. No. 2 Lungren, C NE NW Sec. 26-37n-5w. Drlg. 390 ft.
Santa Rita O. & G. Co. No. 9 Tribal, NE SE NE Sec. 16-35n-6w. Drlg. 1,870 ft.
Wm. Hanlon No. 4 All.-128, SW SE NE Sec. 12-32n-6w. Drlg. 1,670 ft.
Glacier Prod. Co. No. 2 Scheuren, C SW SW Sec. 20-33n-5w. Drlg. 2,710 ft.

Petroleum County

Watson Oil Co. No. 1 Austed, SW NW SE Sec. 22-13n-28e. T.D. 1,160 ft.; landed 10-in. on bttm.; prep. to drill ahead.
H. Clark Rowland No. 1 Brundidge-Mink, SE NW Sec. 35-14n-25e. S.D. 280 ft.

Pondera County

Morton-Cloutier No. 1 Hagan, C SE SE Sec. 5-31n-7w. Drlg. 355 ft. (form. carried under Glacier County).

Teton County

Zodiac Oil Co.-Gulf States Oil Co. No. 1 Kellogg, NE NW NE Sec. 33-28n-5w. Drlg. 2,220 ft.
Gulf States Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW Sec. 5-27-5w. S.D. 2,525 ft. until spring.

Toole County

Kevin-Sunburst had two new operations and one completion. The completion, G. & A. Oil Co. No. 12

Goeddertz, SE NE SW Section 23-35n-3w, on the west side, was better than the average. After pumping 15 bbls. naturally, it was acidized with 500 gallons and responded by pumping and flowing 200 bbls. initially. It settled to 80 bbls. per day. Contact was at 1,668 feet and total depth, 1,680 feet.

G. & A. Oil Co. No. 14 Goeddertz, NE SE SW Sec. 23-35n-3w. Loc. (first report).

A. E. Crumley & Son No. 15 Fryberger, NE NW SE Sec. 24-35n-3w. Drlg. 420 ft. (first report).

Big West Oil Co. No. 10 Gunderson, 1,980 ft. from WL and 1,100 ft. from NL, Sec. 19-35n-2w. T.D. 1,513 ft.; cmtd. 6⅝-in. on bttm.; drlg. plg.

Fulton-Commonwealth No. 2 Thompson, SE NW SE Sec. 28-35n-3w. Drlg. 810 ft.

G. M. Plotke No. 2 Ward, SW cor. Sec. 28-35n-3w. Drlg. 1,220 ft.

Coolidge & Coolidge No. 3-A State, NW NE NW Sec. 36-36n-2w. Drlg. 1,065 ft.; 8¼-in. cmtd. at 1,065 ft.

UTAH

Cane Creek Oil Co. No. 1 Govt., NW SW Sec. 31-26n-21e. Drlg. L. at 3,160 ft.; out of salt at 3,010 ft.; S.O. through 3,000 ft. of W.

Michigan Field Report

By O. C. PRESSPRICH

1,000-Bbl. Well in Redding; Four Wells in Bloomingdale

SAGINAW, Mich., Mar. 13.—Southwestern Michigan continued this past week in its role of pacesetter for the state's oil industry, with activity concentrated in the spectacular Bloomingdale field, in which four wells, all good producers, were completed. Nor were there any indications of a letdown in that most prolific Michigan field. The week's list of drilling permits included seven more for Bloomingdale Township of Van Buren County.

The Bloomingdale field is well established now as the top producing section in Michigan, having displaced Buckeye Township of Gladwin County in that respect. The State Tax Commission, reporting oil and gas severance tax collections for January on Wednesday, revealed that Bloomingdale Township's return from the tax for the month totaled $2,683, which is 40 per cent of the levy on producing wells in that township. The tax—2 per cent of the value of gas and oil produced—is split, 40 per cent to the state, 20 per cent to the county and 40 per cent to the township immediately concerned. For the state as a whole in January severance tax collections amounted to $31,587.

Behind Bloomingdale in township collections of the tax came Buckeye, getting $2,155; Freeman Township of Clare County, getting $1,013; Porter Township of Midland County, getting $912; Redding Township of Clare County, getting $674. Sixteen counties and their township units shared in the January revenue.

Outside Van Buren County oil activity showed some letdown last week, 18 completions having been recorded in the state as a whole, compared with 24 the previous week. Eight of the completions were abandoned as dry holes, while the 10 successful wells added more than 6,700 bbls. to the state's daily potential production.

This week will see beginning of construction of a new refinery on a site just east of Bloomingdale village. It will be built by Lake State Oil & Refining Co. It will have a 1,000-bbl. crude stock capacity and will produce straightrun gasoline, kerosene industrial fuels and fuel oils. Contracts have been closed for a long time supply of crude. Officers of the company include: President, Rae Lewis of Ovid; sales manager, Max Lewis; vice-president, Fred A. Carlson, Paw Paw; secretary-treasurer, Albert B. Wiggins, Ypsilanti.

The plant is the first resulting directly from the Van Buren oil development, which got under way last summer and now is producing more than 15,000 bbls. of crude daily, the bulk of it going to Detroit and Toledo.

Important Deep Test

With no outstanding completions in the list, oil men have been watching closely the results of the deep test being made in Bay County by the production division of Gulf Refining Co. Prospects for that project rose high, then dropped abruptly last week, after the hole had been drilled into the Sylvania sand near the 4,000-foot depth. The stratum was encountered between 3,955 and 3,970 feet. Fluid rose 1,500 feet in the hole, but included 350 feet of salt water. Preparations were under way to treat the well with a Dow Chemical Co. product in the hope of shutting off the water. If that test fails, company officials said the well will be drilled several hundred feet deeper in a final effort to establish a commercial showing of oil below proved levels.

The well was started last fall. Known as No. 1 William Bateman, in Section 2 of Monitor Township (14n-4e), it appeared good for about 25 bbls. daily in the Dundee horizon at about 2,950 feet. Drilled into the Monroe at about 3,500 feet more oil was found and the production rate established at 50 bbls. daily, but the crude was considerably tinged with sulfur. Interest attached to the expensive test is centered in the possibilities that its success would indicate for the "played out" areas in Saginaw and other northeastern Michigan counties.

Pure Oil Co., completing 1-A State-Clare in Section 33, Redding Township, Clare County, had the best well of the week, natural production measuring 508 bbls. in the first 12 hours after drilling in at 3,880 feet. The Clifford F. Clapsaddle No. 1 Been in Van Buren County's Columbia Township indicated a new field south and east of the original Columbia field. Located in Section 24, the well produced 590 bbls. a day after it was acidized at 1,162 feet. M. H. Bauman Nos. 1 and 3 Rogers, both in Section 8 of Bloomingdale, were acidized at 1,236 and 1,216 feet, respectively. Each well then produced at the rate of 1,000 bbls. a day. Production was 600 bbls. in each of the two other completions in Bloomingdale.

Wildcat explorations in Kent and Barry counties were indicated as a result of the new drilling permits, which totaled 24 for eight counties. Smith Petroleum Co. announced plans to try formations in Lapeer County, getting a permit to drill in Section 27, Marathon Township (9n-9e).

More land is offered for oil leasing by the State Conservation Commission which Friday approved sale of leases on 25,000 acres of state-owned land in 11 counties. The acreage will go on sale in April and includes leases in Gladwin, Midland, Clare, Arenac, Missaukee, Ogemaw, Osceola, Alcona, Crawford, Roscommon and Montmorency counties.

The summary of the week's Michigan completions:

Clare County

Redding Township (19n-6w)—Drilling the 1-A State-Clare, N half NE NW Section 33, to a total depth of 3,880 feet, Pure Oil Co. completed the best well of the week. The well flowed 508 bbls. naturally in the first 12 hours.

Allegan County

Fillmore Township (4n-15w)—Muskegon Development Co. abandoned its No. 15 Dykhuis, NE SE NE Section 15, after drilling to 1,625 feet.

Salem Township (4n-13w)—Three successful completions were recorded in Salem, biggest of which was Socony-Vacuum Oil Co. No. 1 Weber, SW NE NW Section 11, which was acidized to an estimated production of 800 bbls. daily at 1,591 feet. Socony also completed its No. 1 Bredewig, SE SE SW Section 15, for 300 bbls. daily after acidizing; total depth 1,593 feet. American Drilling Co. No. 2 Sindlinger, NE SE NW Section 11, was completed at 1,600 feet, its production, after acid treatment, being 440 bbls. daily.

Watson Township (2n-12w)—The R. B. Tamblyn Co. No. 1 Gilmore, SE SE SW Section 36, was abandoned at 1,606 feet.

Wayland Township (3n-11w)—Dry at 1,794 feet, Chapman Oil Co. abandoned No. 1 Gardner, SW NE SE Section 23.

Isabella County

Wise Township (16n-3w)—Cities Service Oil Co. acidized No. 1 McNerney, SE SW SW Section 21, at 3,686 feet, after which the well produced 500 bbls. daily.

Ottawa County

Georgetown Township (6n-13w)—Gordon & Walker abandoned No. 1 Ohler, NW NW NE Section 11, after drilling a total of 1,915 feet.

Jamestown Township (5n-13w)—Dry at 1,824 feet, the No. 1 DeKock, SE NE SE Section 22, was abandoned by Michigan Devonian Oil Co.

Van Buren County

Bloomingdale Township (1s-14w)—The M. H. Bauman No. 1 Rogers, NW SE SE Section 8, and No. 3 Rogers, SE SW SW Section 8, produced 1,000 bbls. daily each, it was estimated, after acidizing of both wells. Total depths were 1,236 and 1,216 feet, respectively. Fisher & McCall No. 2-C Wiggins, NE NW NW Section 16, drilled in at 1,209 feet, was acidized to 600 bbls. daily, the same production as was shown for the Bridger Basin Oil Co. No. 3 Meek, NW SW NE Section 17, which was acidized at 1,226 feet.

Columbia Township (1s-15w)—Indicating a new field, the Clifford F. Clapsaddle No. 1 Been, NW NW NE Section 24, was completed at 1,162 feet. The well, after being acidized, produced 590 bbls. daily.

Covert Township (2s-17w)—W. H. Bochenek abandoned as a dry hole No. 1 Ribicki, NE NE SW Section 3, at 1,148 feet.

Hamilton Township (4s-15w)—No. 1 Young, NW SW NW Section 16, drilled by R. A. T. Wright and others, was abandoned at 973 feet.

Pine Grove Township (1s-13w)—The C. S. Steele No. 1 Uininn, SW NW SW Section 5, was a failure. The test was abandoned after drillers went down 1,485 feet.

MICHIGAN CRUDE OIL RUNS

Daily Average for February, 1939

Pool—	Wells	Runs
Porter-Yost	390	5,835
Greendale-Chippewa	212	1,596
Geneva-Midland	2	18
Sherman-Isabella	63	1,426
Wise-Isabella	3	215
Vernon-Leaton-Denver	81	858
Freeman-Redding	59	10,897
Grant-Clare	2	0
Beaverton	23	186
Edenville	31	1,333
Bentley-Gladwin	34	624
Buckeye-Wicklund-Oard	404	9,376
Ogemaw	236	2,796
Secord-Gladwin	2	0
Adams-Arenac	14	149
Clayton-Arenac	52	2,381
Tuscola	1	0
Saginaw area	59	99
Birch Run	25	43
Dundee-Monroe	3	19
Montcalm County	56	519
Allegan County	242	4,298
Muskegon	82	132
Kent County	4	314
Van Buren County	138	16,381
Total	2,218	58,495

California Field Report

By
L. P. STOCKMAN

Montebello Field Extended; Arvin Discovery Completed

LOS ANGELES, Calif., Mar. 13.—Union Oil Co. is expected to extend the productive limits of the western extension of the Montebello field as No. 30 La Merced, about 1,500 feet east of the most easterly producing well in the extension is in the pay at 7,705 feet. On a one-hour formation test with the hole open at 7.550-636 feet, the well showed a strong blow of gas and a recovery of 580 feet of fluid of which 490 feet was 35.3 gravity oil and 90 feet muddy water with a low salinity. Gas rose to the surface in six minutes, fluid in 25 minutes and oil appeared in 29 minutes with a very strong blow of gas. The well flowed for 40 minutes at the rate of about 500 bbls. per day after the valve had been closed. Upon conclusion of the formation test the crew resumed drilling to determine the thickness of the oil sand.

No. 30 La Merced is running substantially lower structurally than producing wells to the west. The zone tested has not been definitely identified but is believed to be about 400 feet below the top of the seventh zone. This well cored and tested the fifth zone and found water, but failed to find any oil sand in the interval where the four fingers of the sixth zone had been anticipated. On the showing it appears probable that Union Oil Co. will be able to complete a good flowing well upon completion. It is on the south flank of the old Montebello structure.

Union Oil Co. completed No. 3 Wilcox, located adjacent to the Wilcox nursery, flowing 705 bbls. of 35.6-gravity oil and 1,100,000 cu. ft. of gas from the fourth finger of the sixth zone with bottom of the hole at 6,699 feet. This new well, which was brought in flowing through a 42/64-inch bean and showing a tubing pressure of 450 pounds and a casing pressure of 750 pounds, was finished with an 8⅝-inch water string landed and cemented at 6,648 feet. Olympic Refining Co., which recently completed No. 1 Smith Community, flowing 515 bbls. of 36.1-gravity oil from the fourth finger of the sixth zone, is preparing to produce the seventh zone simultaneously. The recent completion of Union Oil Co. No. 1 Calkins in the extreme eastern end of the western extension has stimulated interest in this area and several new wells have been started east and north of No. 1 Calkins.

Buttonwillow

California Exploration Co. No. 1 Dougherty-Salisbury, a wildcat in the Buttonwillow district of Kern County, in Section 7-29-24, is still an enigma as far as commercial production is concerned as several formation tests have proved inconclusive. The hole is in an oil sand believed to be the equivalent of the Stevens sand which has been found productive in the Greeley, Ten Section, Canal, Tupman and Coles Levee fields but there is still some question as to whether the well has actually reached the main body of the zone. No. 1 Dougherty-Salisbury is at present down 11,611 feet and it may be possible that the main body of the Stevens zone may not be reached above 11,700 feet. On a formation test at 11,532-60 feet the well showed a fair blow of gas but the packer failed and thus the real importance of the upper part of the zone is problematical. This interval consists of oil sand interbedded with hard siliceous sandstone and some shale but the lower part of the hole at 11,560-611 feet contains more oil sand and looks more promising.

Rosecrans

In the Rosecrans field of Los Angeles Basin, Barnsdall Oil Co. No. 12 Rosecrans is being swabbed for production. Universal Consolidated Oil Co. completed No. 10 Trust lease, flowing 746 bbls. of clean 33.8-gravity oil per day from the O'Dea zone, with bottom of the hole at 7,757 feet. The company then staked locations for Nos. 15, 16 and 17 on the same lease. Bankline Oil Co. completed its first deep zone well in the field in the past week when No. 2 Kirby was brought in flowing 317 bbls. of clean 32.1-gravity oil per day through an 18/64-inch bean with bottom of the hole at 7,701 feet. This well was finished with a string of 7-inch casing landed and cemented at 7,551 feet and gun perforated at 7,436-70 feet and at 7,475-94 feet and 198 feet of 4½-inch liner including perforations at 7,553-650 feet and at 7,688-99 feet. It topped the O'Dea zone at 7,375 feet and is producing from the upper and lower members of the zone. Barnsdall's new well, No. 12 Rosecrans, which should be tanking oil shortly, is bottomed at 7,652 feet. Superior Oil Co. recompleted No. 12 Maxwell Community after cleaning out the hole and returned the well to production pumping 340 bbls. of 31.1-gravity oil cutting 2.5 per cent. This well, which was carried down as a deep test to 8,852 feet and then plugged back to 7,696 feet and the 6⅝-inch casing perforated at 7,490-510 feet, looked like a good well during the course of work but failed to come up to expectations upon being completed in the O'Dea zone.

Arvin

Standard Oil Co. No. 1 Jewett, the discovery well in the Arvin field of Kern County, was given a potential production test early in the week and established a potential of 2,875 bbls. of 31.7-gravity oil through a 48/64-inch bean along with about 3,000,000 cu. ft. of gas. It was drilled by Superior Oil Co. on land leased by Standard Oil Co. for the joint account of Superior Oil Co., Standard Oil Co. and the Texas Co. All three companies hold leases in the area and instead of drilling three wells they got together and drilled one well. The discovery well belongs to Standard Oil Co. and the dry hole money contributed by Superior Oil Co. and the Texas Co. will be repaid out of production. The Texas Co. has not indicated when it will begin active development work but Superior Oil Co. has a derrick up for No. 1 P. D. Jewett, 1,650 feet south and 990 feet west of the northeast corner of Section 16-31-29. This places it as a first line offset of Standard No. 1 Jewett, the discovery well. The Arvin district is southeast of the Mountain View field and is believed to be along the same general uplift.

Torrance

The appearance of water in increasing quantities in several producing wells in the Eshelman and Walnut sections of the Torrance field is giving producers something to think about because this may mean that the end of flush production is fast approaching. Deep Hole Drilling Co. No. 1 and J. E. Pettijohn No. 1 Adele, the latter a recent completion and both located at 240th Street and Walnut, have shown a consistent and appreciable increase in the water cut. In order to minimize this both wells have been reduced to 300 bbls. per day. Water intrusion in wells near 236th Street and Eshelman Avenue appears to be more seri-

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

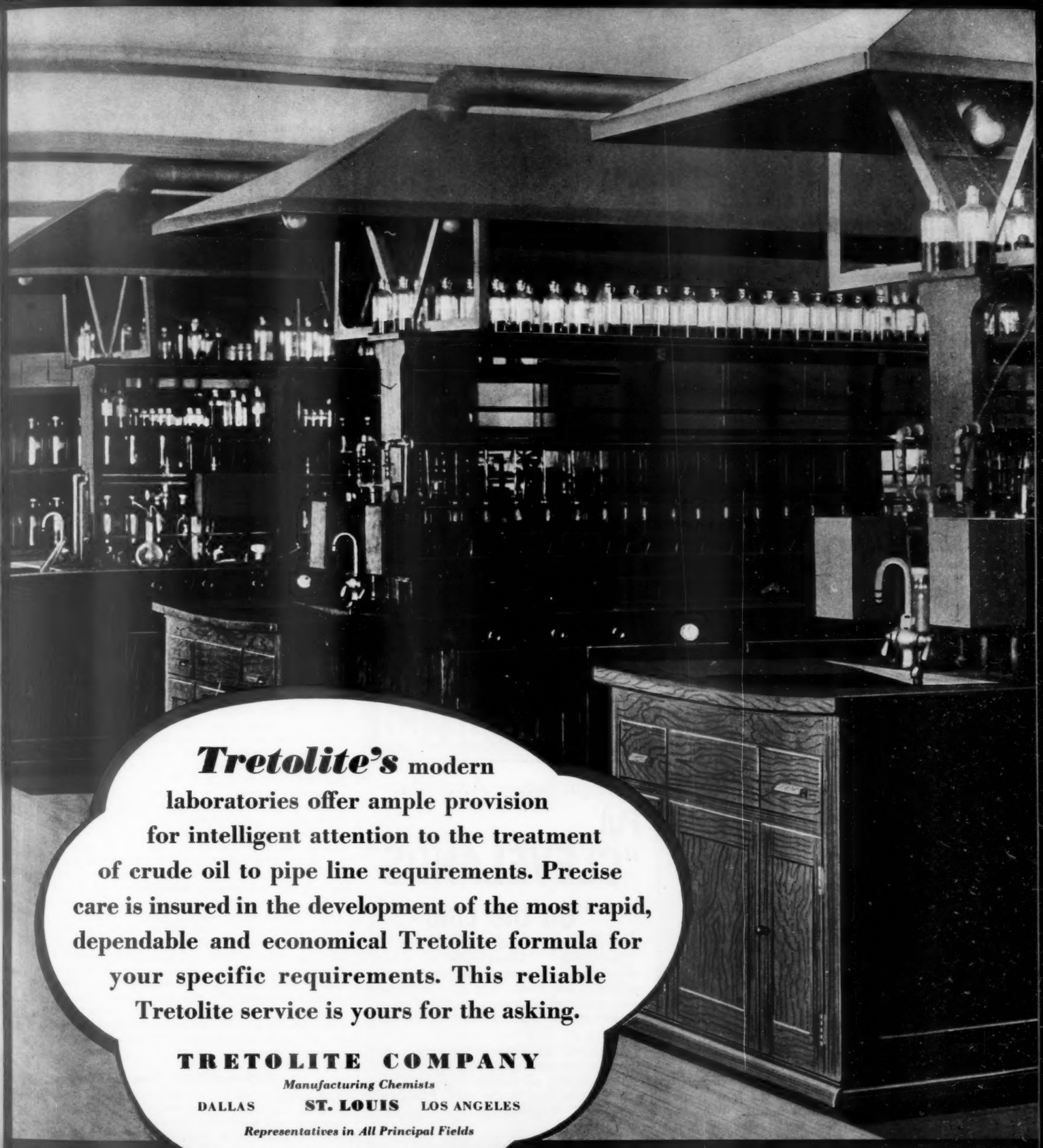
	March 4		February 25			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....			60,642	.....
Fuel oil	.....	.....	61,332	8,762	324,591	.....
Diesel and gas oil	.....	.....	.....	.....	163,501	
Gasoline	.....	.....	.....	.....	66,715	344,116
Kerosene	.....	.....	.....	.....	56,940	59,885
Foreign exports—						
Crude oil	440,812	62,973	395,012	56,430	2,718,666	3,827,088
Fuel oil	218,835	31,262			1,301,795	1,241,219
Diesel and gas oil	84,223	12,032	117,492	16,785	692,240	754,569
Gasoline	113,235	16,176	557,255	79,608	1,590,555	1,026,079
Kerosene	.....	.....	10,310	1,473	217,243	166,162
Coastwise-domestic—						
Crude oil	115,701	16,529	120,212	17,173	1,447,032	1,847,100
Fuel oil	107,659	15,380	254,570	36,367	1,559,900	2,274,139
Diesel and gas oil	92,735	13,248	29,217	4,174	534,560	282,960
Gasoline	319,335	45,619	203,666	29,095	2,151,455	2,497,427
Kerosene	21,542	3,077	.....	.....	58,834	42,756

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	69,550	178,662
Asphalt	.....	.....	.....	.....	.....	73,449
Lubricants	.....	.....	.....	.....	4,170	.....
Foreign exports—						
Crude oil	127,529	18,218	302,422	43,203	918,258	760,177
Fuel oil	83,902	11,986	63,575	9,082	344,717	256,214
Diesel and gas oil	186,888	26,698	54,769	7,824	306,306	181,973
Gasoline	15,590	2,227	234,530	33,504	610,230	878,417
Kerosene	9,810	1,401	89,797	12,828	148,834	110,450
Lubricants	29,945	4,278	50,940	7,277	84,271	82,632
Coastwise-domestic—						
Fuel oil	168,114	24,016	254,980	36,426	860,379	1,139,282
Diesel and gas oil	.....	.....	4,994	713	41,552	332,801
Gasoline	84,153	12,022	90,041	12,863	481,236	1,181,710
Kerosene	9,137	1,305	16,148	2,307	77,443	154,097

TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

Crude oil	.....	.....	.....	.....	60,642	.....
Fuel oil	.....	.....	61,332	8,762	324,591	.....
Diesel and gas oil	.....	.....	.....	.....	233,051	178,662
Gasoline	.....	.....	.....	.....	66,715	344,116
Kerosene	.....	.....	.....	.....	56,940	59,885
Asphalt	.....	.....	.....	.....	.....	73,449
Lubricants	.....	.....	.....	.....	4,170	.....
Foreign exports—						
Crude oil	568,341	81,192	697,434	99,673	3,636,924	4,587,265
Fuel oil	302,737	43,248	63,575	9,082	1,646,512	1,497,433
Diesel and gas oil	271,111	38,730	172,261	24,609	998,546	936,542
Gasoline	128,825	18,404	791,785	113,112	2,200,785	1,904,496
Kerosene	9,810	1,401	100,107	14,301	366,077	276,612
Lubricants	29,945	4,278	50,940	7,277	84,271	82,632
Coastwise-domestic—						
Crude oil	115,701	16,529	120,212	17,173	1,447,032	1,847,100
Fuel oil	275,773	39,396	509,550	72,793	2,420,279	3,413,421
Diesel and gas oil	92,735	13,248	34,211	4,887	576,112	615,761
Gasoline	403,488	57,641	293,707	41,958	2,632,691	3,679,137
Kerosene	30,679	4,411	16,148	2,307	136,277	196,853



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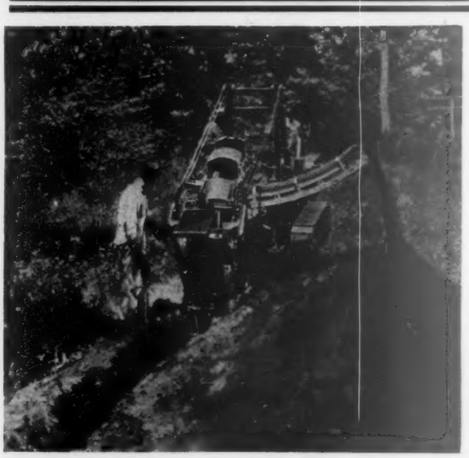
Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Ellwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Conlinga	Santa Paula*	Wheeler Ridge	Kettleman Hills	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$ .77	$ .78	...	...	$ .70	$ .70	$ .70	...	...	.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.78	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

ous and at the present rate a large portion of these producing wells will show cuts ranging from 1 per cent to about 20 per cent in the near future. This was an outstanding characteristic of development work in the Lomita section of the field where deep zone development was started. If the water problem becomes a menace it will force operators to bean back wells and thus reduce field production, something that the curtailment committee has so far been unable to induce them to do. During the current week Hathaway Oil Co. completed No. 1 Meyers flowing 620 bbls. of 26.3-gravity oil cutting 2.5 per cent from 5,160 feet and D. W. Elliott completed No. 10 Kettler flowing 601 bbls. of 26.7-gravity oil cutting 3 per cent from 5,147 feet. The former was finished with a 7-inch water string landed at 4,948 feet and 285 feet of 5½-inch liner including 245 feet of perforations landed on bottom while the latter was finished with a 6⅝-inch water string landed at 4,917 feet and 244 feet of 5-inch liner including 214 feet of 180-mesh perforations landed on bottom. No. 1 Meyers was brought in flowing through a 42/64-inch bean while No. 10 Kettler was finished flowing through a 28/64-inch bean.

For DIGGING LOW COST DITCH



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Wilmington

In the Wilmington field of Los Angeles Basin General Petroleum Corp. No. 34 Harbor Community was brought in flowing 1,255 bbls. of clean 27.3-gravity oil per day from the Terminal zone with bottom of the hole at 4,040 feet. It was brought in flowing through a 40/64-inch bean and shows a tubing pressure of 590 pounds and a casing pressure of 1,260 pounds, indicating it is capable of producing a much larger quantity of oil. Richfield Oil Corp. No. 22 Pacific Dock lease was brought in flowing 198 bbls. of 19.2-gravity oil, cutting 2 per cent, from the Ranger zone with bottom of the hole at 3,000 feet. This new well was brought in flowing through a 16/64-inch bean. Union Pacific Railroad Co., largest holder of productive acreage in the Wilmington field, completed No. 102 flowing 240 bbls. of relatively clean 18.5-gravity oil per day from a depth of 3,160 feet. No. 34 Harbor Community of General Petroleum Corp. was finished with an 11¾-inch water string landed at 2,500 feet and an 8⅝-inch liner including 1,135 feet of 6⅝-inch on the bottom and carrying perforations at 2,500-900 feet, 3,263-450 feet, 3,550-730 feet, 3,770-910 feet and 3,950-4,040 feet. A 6⅝-inch flow string was landed on a seat at 2,904 feet. Richfield Oil Corp. No. 22 Pacific Dock was finished with an 8⅝-inch water string landed and cemented at 2,716 feet and a 6⅝-inch liner landed on bottom. Union Pacific Railroad No. 102 was finished with 464 feet of 4¾-inch liner including 421 feet of 60-mesh perforations landed at 3,160 feet and carrying perforations at 2,699-700 feet, 2,720-877 feet and 2,897-3,160 feet and was gravel packed before completion. Signal Oil & Gas Co., which is developing a number of tideland properties leased from the city of Long Beach, should complete the first of several potential producers before the close for another fortnight.

Kettleman North Dome

Kettleman North Dome Association (Kenda) completed an excellent well in the North dome of Kettleman Hills this week when No. 6-16-Q in Section 16-22-18 was brought in flowing 4,600 bbls. of clean 35.2-gravity oil and 4,166,000 cu. ft. of gas per day from the Temblor with bottom of the hole at 8,185 feet. This well is a few hundred feet northwest of Kenda's No. 27-16-Q and is southwest of Kenda's No. 55-16-Q. The latter well, in about the center of Section 16-22-18, proved to be a dry hole and defined the limits of commercial production. The new completion, located in east central part of the Kettleman structure, was finished with 1,471 feet of 6⅝-inch liner landed at 8,180 feet and carrying perforations at 7,720-34 feet, 7,766-871 feet, 7,935-8,005 feet and 8,049-8,180 feet and cemented through perforations at 7,619 feet. Top of the McLure shale was logged at 5,188 feet and top of the Temblor was cored at 6,605 feet. It was brought in

flowing through a 1¼-inch bean, but was cut back immediately subsequent to completion due to curtailment.

Operators in the Kettleman North Dome field have scheduled a meeting to be held within the next few days to discuss additional curtailment. Kettleman North Dome field, which has been operated under curtailment since its discovery, has an allotment of 55,495 bbls. per day for March, being exceeded only by the Wilmington field, which has an allotment of 68,885 bbls. daily. Kettleman North Dome, however, has been closely adhering to its allotment, whereas Wilmington has been overproducing about 15,000 bbls. per day for the past several months.

Rio Bravo

General Petroleum Corp. finally completed No. 3 Van Ness, Section 2-29-25, in the Rio Bravo field after making several production tests, and it was brought in flowing 1,775 bbls. of 34.8-gravity oil and 1,880,000 cu. ft. of gas per day from 11,480 feet. This well was given a production test on the way down but the flow was killed and the hole deepened to the lower Rio Bravo zone at 11,543 feet. Upon finding the lower Rio Bravo zone wet the hole was plugged back to 11,480 feet and finished with 103 feet of 4¾-inch liner including 50 feet of perforated. No. 3 Van Ness, on the basis of the tests made, is located very close to the edge of the field. General Petroleum is drilling in No. 1 Caldwell, Section 35-28-25, at 10,130 feet and has derrick up for No. 2 Van Ness. Superior Oil Co. spudded in No. 1 Moodie in Section 26-28-25, in the northern end of the field, and present plans call for a very deep test unless production is secured in the Rio Bravo zone.

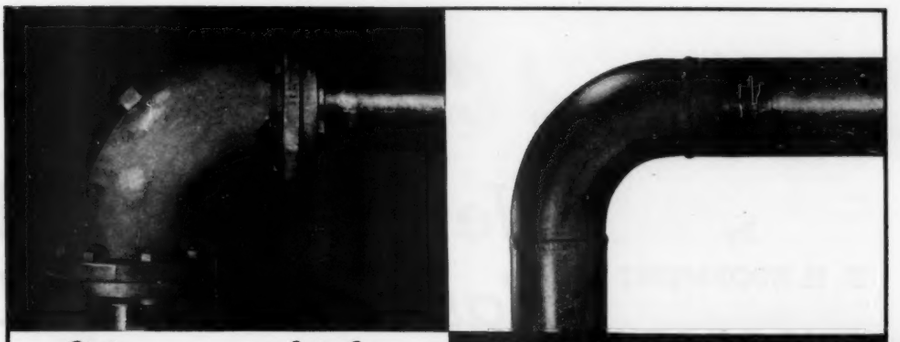
San Joaquin Basin

Frances O'Reily completed No. 1 Extension in the Edison field of Kern County flowing 70 bbls. of clean 21.1-gravity oil per day from 4,156 feet from a productive zone at the base of the Valvulineria zone of upper Temblor age and in doing so has greatly stimulated leasing activities in the area. This well, located in Section 5-30-29, is a semiwildcat and its performance has been somewhat surprising. The hole was finished with an 8⅝-inch water string landed at 2,430 feet and 1,814 feet of 6⅝-inch liner including 115 feet of perforated landed on bottom. Top of the oil sand was logged at 4,070 feet. Tide Water Associated Oil Co. has staked location for a wildcat northeast of the Canal field of Kern County and early work is anticipated. This well will be drilled 2,310 feet north and 1,650 feet east of the southwest corner of Section 7-30-26, which places it about 1½ miles northeast of the Canal field and 1 mile northwest of Continental Oil Co. No. 1-E Kern County Land, in Section 17-30-26, which cored 50 feet of fair-looking oil sand in the Stevens zone at 8,183-242 feet but found it wet on a production test. North of Tide Water Associated Oil Co.'s new location Ohio Oil Co., found the Stevens zone barren in No. 2-E Kern County Land and the well was accordingly abandoned.

Continental Oil Co. has topped the pay in the Wasco field in No. 4-A Kern County Land, Section 8-27-24, at 13,106 feet and is now coring ahead in oil sand at 13,197 feet. The zone is well saturated and consequently an excellent producing well is expected to be completed. Standard Oil Co. No. 2 Mushrush, Section 7-27-24, should be the next well to hit the pay in this field as it is at present going ahead at 12,650 feet. Richfield Oil Corp. abandoned its Union Avenue wildcat in Section 6-30-28 as a dry hole at 10,427 feet. The only showings logged in this wildcat were in the Chanac at 4,500 feet. The Chanac was topped at 4,412 feet and the Santa Margarita at 5,202 feet. The Olcese, Vedder and Rio Bravo zones consisted of tight silt equivalents and were barren.

In the North Belridge field of Kern County Belridge Oil Co. completed No. 2 in Section 28-27-20 flowing 919 bbls. of 31.7-gravity oil cutting 1.5 per cent and 700,000 cu. ft. of gas per day from the Wagonwheel zone of Eocene age with bottom of the hole at 8,588 feet. It was brought in flowing through a 1⅛-inch bean and finished with a 9-inch water string cemented at 8,180 feet, and 420 feet of 4¾-inch liner including 296 feet of perforated landed on bottom and cemented through perforations at 8,293 feet.

In the Kern River front Heim & Smith completed No. 12 in Section 34-28-28 pumping 6 bbls. of 13.3-gravity oil cutting 3 per cent from 670 feet, and D. B. K. Oil Co. completed No. 1 in the same section pumping 5 bbls. of 13.2-gravity oil cutting 2 per cent from 340 feet.



It's a good idea —"WASN'T" IT?

THE tense can change from present to past almost as fast as that when a better way comes along. Even if it rattled, your old mechanically joined auto chassis was once entirely satisfactory. They *all* rattled. But then the welded chassis came along and the "rattling good" chassis became entirely UNsatisfactory.

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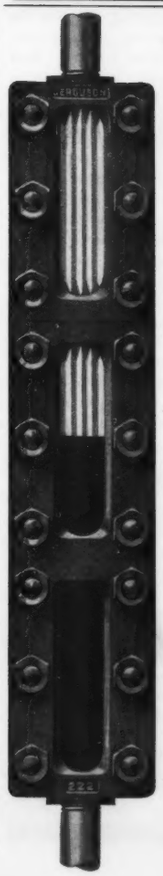

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For Shallow Wells

North and East Texas

By
D. H. STORMONT

New Pipe Line Will Increase Eastern Texas Development

WICHITA FALLS, Tex., Mar. 13.—The possibility of a new deep sand pool for northern Archer County and the staking of new locations throughout the district featured the development of the North Texas area.

A new 4,400-foot Strawn-sand pool was assured northwestern Archer County when it was estimated that E. P. Griffin No. 1 Waggoner, Section 3, Block 4, H.&T.C. Survey, would make a small pumping well. The hole was deepened 1 foot after drilling into saturation to a depth of 4,407 feet, and oil was reported to have risen 400 feet in the hole in seven hours. It was swabbing a small amount of oil, and the operator announced that if no increase was found the hole would be deepened another 4 or 5 feet into the sand. The pay is broken and the operator believes a heavy shot will greatly increase production. Griffin owns several thousand acres in fee around the well. It is 6 miles west of production in the K.M.A. pool.

The deepest test ever drilled in North Texas, Louis Sikes No. 1 M. M. Martin, William Shaw Survey, three-quarters of a mile northeast of Sikes No. 1 Ford, a pool opener, was running casing to a depth of 5,790 feet. Sikes plans to test showings in the Caddo lime from 5,226 feet to 5,235 feet and possibly showings in the Ellenburger below 5,690 feet. An electrical survey instrument was lost in the hole several weeks ago and if the operator plans to drill deeper the hole will be sidetracked.

100 Bbls. Per Hour

A quarter-mile south outpost to the north extension area of the Hull-Silk pool of Archer County, Bert Ligon and Deep Oil Development No. 3 Wilson, in Lot 1, Block 25, A.T.N.C.L. Survey, drilled plug from casing cemented on top of sand and flowed at the rate of 100 bbls. hourly. Saturation was from 4,280 feet to 4,320 feet and the well is estimated to be the best yet completed in the 4,300-foot section of the pool.

K.M.A. Pool

Attention in the K. M. A. pool was centered on two outposts to production, one on the northeast side and the other on the south side of the pool. A mile northeast of production south of the Wichita River, Grace & Woods No. 1 Love, northeast corner of Block 129, W. S. Kennard Survey, Abstract 147, topped the lime at 3,800 feet, high for the area, and was drilling below that depth towards the sand. A half mile south outpost has been staked to the extreme southwest edge of production. Test is E. P. Griffin No. 1 fee, northwest corner of Lot 4, W. H. Spillers Survey.

Cooke County

Three new locations by the operators who discovered the Ellenburger, Lower Ordovician, production in the Muenster area of northern Cooke County, have been staked around their discovery well. The discovery, Whitefield, Pearson & Grimes No. 2 Voth, in the Z. P. Fulton Survey, was completed in pay at 1,788-93 feet for 302 bbls. of oil and 75 bbls. of water in 17 hours. Operators staked No. 3 Voth, 680 feet northwest of the No. 2 producer. No. 4 Voth is 660 feet west of No. 3, and No. 5 Voth is 660 feet west of No. 2. All of the locations are in the W. W. Fulton Survey, Abstract 1251. Operations will start at once on the No. 3 Voth.

Clay County

Western Clay County has been given another deep wildcat that will seek the deep pay found in the other wildcats in the area. The test is the Birdwell Oil Co. No. 1 Halsell ranch, southeast from the corner of the John Rogers Survey, Abstract 390, but in Block 16, W. C. Survey, Abstract 976. The wildcat is 2 miles north of Halsell in the western part of the county. It is about 7 miles north of L. T. Burns No. 1 Browning, Block 94, A. Belcher Survey, which has indicated a new pool for the county but is awaiting the outcome of curing lease titles before drilling the plug.

Baylor County

Apparently intent upon determining the limits of the new field in Baylor County, discovered several weeks ago by British American Oil Co., that company has staked a new 3½-mile southeast outpost to the discovery well after missing the pay horizon in its second test three-fourths of a mile southwest of the discovery. The test is British American Oil Co. No. 1-G F. C. Green, center of Lot 7, Section 8, J. E. Hix Survey, Abstract 1376. The new wildcat is 3½ miles southeast of No. 1 Green, Section 215, T.&N.O. Survey, completed for 250 bbls. of oil daily and 65 bbls. of water from 2,585 feet to 2,605 feet. Contract depth is 5,000 feet. Consolidated Oil Co. and associates recently staked a wildcat on the Green land in Section 230, T.&N.O. Survey, 1½ miles southwest of the new test. British American Oil No. 1 Cope, second test in the area, and three-quarters of a mile southwest of the discovery, was drilling below 3,812 feet, after missing the Canyon sand pay of the pool opener. It is drilling toward completion of a 5,500-foot contract.

Flag Lake Field

The Flag Lake pool, in northwestern Henderson County, 9 miles southwest of Mabank, which has been fairly inactive since the first of the year, is experiencing new activity with completion of Humble Oil & Refining Co.'s pipe line from the pool to its station at Mildred in Navarro County. Two outposts have been waiting more favorable weather before getting under way, while a third wildcat has been staked in Kaufman County just north of the field, and a fourth southwest of the pool and in Henderson County.

Survey of the pool indicates 15 completed and producing wells with a total daily allowable of 630 bbls., or an average of 42.4 bbls. daily per well.

Southwest of the pool the Texas Co. has staked its No. 1 Trinity Farms, in the C. E. Miller Survey. Location is 640 feet southwest of the Texas Co. No. 1 J. P. Tarkington, on the south line of the William K. Newell Survey. North of the Flag Lake pool and 5 miles northwest of Mabank, Harry Hines and Richards & Holloway have staked location for No. 1 E. B. Tuggle, 100-acre tract in the southwest corner of the Ed Fitzgerald Survey, 2 miles northeast of the town of Gossett. With derrick and slush pits nearly completed, machinery for the test will be moved in at once.

Navarro Crossing Pool

With preparations under way for the Humble Pipe Line Co. to lay a line to the Navarro Crossing Woodbine sand pool of northwestern Houston County from its Corsicana station, new activity by the company is expected in the area. A northwest outpost to the pool and in Leon County, a south extension for production and a new western outpost to the pool, indicates the pace of activity by the Humble company, which owns all of the production in the pool.

Official gauge for the Humble No. 1 T. Tryon, south of the pool, was 148 bbls. of oil in 24 hours, through three-sixteenths inch choke with 1,500,000 cu. ft. of gas. To the southeast of production, and a test which may have considerable to do with defining the trend of the pool, Humble No. 1 Mobley, John La Reviere Survey, was drilling below 3,700 feet, about 2,000 feet above the Woodbine sand.

Humble's wildcat in Leon County, No. 1 Swift, in the T. W. Sublett Survey, was drilling below 2,100 feet. A mile north of the discovery well, C. W. Killough and associates were reported preparing to start No. 1 M. S. Perrone, in the Nathan Wade Survey, on a farmout from the Shell Petroleum Corp.

Upshur County

Extreme northern Upshur County has been given another wildcat which will be carried to the Woodbine sand. Gaskill Oil Co. of Tulsa staked No. 1 J. D. Buie, in the northeast corner of the Buie 160-acre tract of the James Scott Survey, Abstract 440. The site is 1½ miles southwest of the community of Ashland, just south of the Harrison County line. The company was preparing to move in materials for immediate drilling.

EAST TEXAS FIELD COMPLETIONS

(One-hour tests)

Rusk County—Kilgore Area

General American Oil Co. No. 19 J. E. Sexton, 3,590-3,615 feet, 5 bbls. Humble Oil & Refining Co. No. 45 J. N. Peterson, 3,604-07 feet, 80 bbls.

Rusk County—Joiner Area

Humble Oil & Refining Co. No. 1-B D. C. Joiner, 3,725-26 feet, 35 bbls. M. H. McMurry No. 1 fee, 3,612-35 feet, 40 bbls. Overton Refining Co. No. 17 S. M. Clay, 3,550-78 feet, 20 bbls.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour tests)

Anderson County

Barnsdall Refining Co. No. 2 W. L. Tubbs, 7,426-62 feet, 18 bbls. distillate.

Freestone County

A. J. Willis No. 1 W. W. Craig, dry and abandoned at 3,751 feet.

Henderson County

Richards & Holloway No. 1 Tarkington, 3,044-48 feet, 110 bbls.

Houston County

Humble Oil & Refining Co. No. 1 Tryon, 5,874-80 feet, 148 bbls.

Van Zandt County

Van Zandt Syndicate No. 5 C. S. Coker, dry and abandoned at 1,262 feet.

NORTH TEXAS COMPLETIONS

Archer County

Cable Oil Co. No. 4 J. G. Crowley, 975-82 feet, 175 bbls. Continental Oil Co. No. 2 S. E. Oldham, 1,354 feet, dry. E. P. Griffin No. 1 J. T. Longley, 1,301 feet, dry. Shappell Oil Co. No. 17 G. Bell, 1,008-11 feet, 25 bbls. Underwood and others No. 1 Junker, 1,289 feet, dry.

Cooke County

Seitz & Comegys No. 3 H. Felderhoff B, 1,549 feet, dry. Trumter Petroleum Corp. No. 1 Voth A, 1,919 feet, dry.

Montague County

Seitz and Comegys No. 9 J. W. King, 2,127-47 feet, 335 bbls.

Jack County

Champlin & Bass No. 1 C. P. Gahagan A, 3,181-93 feet, 355 bbls. A. Cohen No. 5 Bank Lands, 2,348-66 feet, 127 bbls. R. D. Compton No. 2 Robert Wilson, 410 feet, dry. Rowan & Nichols No. 2 S. J. Bailey,

2,815-44 feet, 165 bbls. Dr. R. G. Stevens No. 2 J. A. Beasley, 2,906-90 feet, 20 bbls. G. C. Gilmore No. 1 J. Burt, 451 feet, dry.

Wichita County

Board of Mineral Development No. 4 State Lands, 3,658-3,723 feet, 850 bbls. L. T. Burns Nos. 21, 24, 25 Sue Mitchell, abandoned locations. Cochran & Cain No. 1 W. T. Waggoner B, 1,906-60 feet, 6 bbls. Consolidated Oil Co. No. 17 W. P. Ferguson, 3,693-3,795 feet, 1,000 bbls. Consolidated Oil Co. No. 3 Mrs. J. James, 3,913-87 feet, 1,200 bbls. Continental Oil Co. No. 7 Waggoner Brothers C, 3,740-90 feet, 700 bbls. Deep Oil Development Co. No. 1 R. J. Bradley, 3,675-3,784 feet, 995 bbls. Deep Oil Development Co. No. 20 Munger A, 3,803-80 feet, 700 bbls. E.C. Oil Co. No. 5 G. W. Lewis A, 3,743-3.805 feet, 770 bbls. E.C. Oil Co. No. 9 Mrs. Anna Mangold, 3,720-3,850 feet, 550 bbls. Golding & Cochran No. 6 D. R. Preston, 4,007 feet, dry. N. H. Martin No. 1 Martin C, 651 feet, dry. Mrs. H. B. Wallace No. 2 W. J. Logan B, 3,707-90 feet, 824 bbls.

Young County

W. F. Collins No. 2 Young County Lumber Co., 631 feet, dry. Magnus Oil Corp. and others No. 1 B. B. Teague, 3,926 feet, dry. K. R. Marsh No. 1 Hunt and others, 1,131-34 feet, 40 bbls. W.E. Production Co. No. 1 H. E. Brown, 3,905-4,008 feet, 300 bbls. W.E. Production Co. No. 2 H. E. Brown, 3,911-3,941 feet, 660 bbls. Vital Oil Co. No. 1 Church Lot, abandoned location.

Oklahoma Fields

(Continued from Page 78)

J. E. Crosbie, Inc., No. 12 Escoe, SW cor. Section 26-18-8, pumped 90 bbls. of oil initially after a shot and was completed at total depth of 2,608 feet.

Shibley Oil Co. No. 1 Mike, NW cor. Section 8-16-10, was abandoned at 2,308 feet, total depth.

L. B. Jackson No. 1 Stanley, SE NE SW Section 33-18-10, found Dutcher sand at 2,632-53 feet, total depth, and swabbed and flowed 75 bbls. of oil in 24 hours, with gas estimated at 200,000 cu. ft. daily.

McAdams & Thornton No. 1 Jackson, SW SW NW Section 31-17-10, Kellyville area, had Dutcher sand at 2,701-15 feet, total depth, and flowed 238 bbls. of oil in 24 hours, with gas estimated at 3,000,000 cu ft.

A. W. Swift No. 2 Hayden, NE SE NE Section 12-19-9, was dry and abandoned at 1,165 feet, total depth.

J. Garfield Buell's test in SW NW SW Section 15-14-10, was drilling below 2,250 feet.

Logan-Garfield Counties

Helmerich & Payne, Inc., No. 1 Humphrey, NE NE SW Section 27-16-1e, Meridian area, Logan County, was recompleted for 32,600,000 cu. ft. of gas after plugging back from 5,318 feet to 4,950 feet, shooting and acidizing.

Champlin Refining Co. No. 1 Mackey, NW NW SE Section 4-24-8w, Hillsdale area, Garfield County, topped second Wilcox sand at 6,692 feet, total depth 6,697 feet, and was completed for 63 bbls. of oil daily.

Lincoln County

Wilcox Oil & Gas Co. No. 16 DeLozier, SW cor. Section 10-14-6, Sac and Fox pool, Lincoln County, found Prue sand at 3,013 feet, total depth 3,020 feet, was shot and produced 188 bbls. of oil in 24 hours.

New work in Lincoln County: Big Chief Drilling Co. No. 1 Christian, SE NE NE Section 3-14-2e, North Wellston area, rigging up rotary; Mudge Oil Co. No. 2 Teter, SE SE NE Section 9-14-6, drilling below 2,930 feet; Helmerich & Payne, Inc., No. 3 Kenworthy, NE NW SW Section 14-14-6, set casing and was waiting on cement at 2,918 feet; Wilcox Oil & Gas Co. No. 2 School Land, NE SW NE Section 14-16-6, drilling below 2,200 feet; same company's No. 2 School Land, SE NW SE Section 16-14-6, building rig.

Tulsa-Pawnee-Osage

A. D. Whitten No. 2 Henderson, SE NE SE Section 24-19-11, Sand Springs area, Tulsa County, was bottomed at 1,449 feet and produced 1,000,000 cu. ft. of gas daily.

Sendorf and others No. 1-A Self, NW NW SW Section 36-17-12, Tulsa County, was completed for 600,000 cu. ft. of gas at 758 feet, total depth.

Central Commercial Oil Co. No. 2-A Bittle, SW SW NE Section 13-16-12, Tulsa County, was dry and abandoned at 2,298 feet, total depth.

M. P. Thomas No. 4 Ackley, C S half SW SE Section 14-20-9, Pawnee County, was dry and abandoned at 1,285 feet, total depth.

Johnson Oil Refining Co. No. 1 Finley, SW NE NW Section 27-20-9, Pawnee County, was bottomed at 2,081 feet, was shot and produced 490 bbls. of oil daily.

Indian Territory Illuminating Oil Co. No. 10 Osage, NW NW NE SW Section 10-26-11, Osage County, produced 4,000,000 cu. ft. of gas daily and was completed at 1,870 feet, total depth.

Norbla & Howard No. 1 Osage, NW NW NE Section 31-22-9, an old well, was plugged back from 2,481 feet, total depth, and recompleted for 12,500,000 cu. ft. of gas daily.

Southern-Southwestern Areas

Comet Drilling Co. No. 1 Tarby, C NW NE Section 17-1n-2e, Murray County, was reported abandoned at 2,508 feet, total depth.

Kebron & Bretton No. 1 Leona, SW SE SE Section 31-1n-19w, Tipton pool, Jackson County, found granite wash at 2,579-91 feet, total depth, and pumped 113 bbls. of oil in 24 hours.

Magnolia Petroleum Co. No. 6 Pau Kune, SE NE NE Section 10-5-9w, an old well in the Cement field, Caddo County, was deepened from 3,400 feet to 3,411 feet, and was estimated capable of producing from 2,400 bbls. to 3,600 bbls. of oil daily, recompleted.

Same company's No. 11 McKenna, SW NE SE Section 11-5-9w, had dug pits. J. B. Nicholas No. 3 Royce, NW SW NE Section 12-5-9w, was building derrick.

Additional New Work

In Stephens County, George L. Pace No. 10 Houston, SE NE SW Section 2-2s-8w, was waiting on cement at 1,548 feet.

In Kay County, Shell Petroleum Corp. No. 6 Lawrence, NE NE NW Section 5-28-1w, was a location.

In Okfuskee County, Shell Petroleum Corp. No. 6 Johnson, SW NW NE Section 11-11-8, was drilling below 1,235 feet; R. C. Walker No. 2 Klein, C SW NW Section 2-11-11, was a cellar; M. M. Hourigan's test in SW cor. Section 1-11-8, was a location.

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Mar. 11.—Crude and naphtha production from all Alberta fields in January totaled 515,539 bbls. compared with 472,744 bbls. in December. In Turner Valley, limestone crude increased from 421,209 bbls. to 462,758 bbls.; and naphtha from 46,761 to 49,296 bbls., while shallow crude declined from 836 to 796 bbls. Red Coulee light crude was up from 1,177 to 1,206 bbls. Wainwright heavy crude dropped from 1,025 to 524 bbls. The Dina-Ribstone area, which produced 640 bbls. in December, yielded 759 bbls. in January, and there was a new production of 200 bbls. from Lloydminster Royalties No. 1, in the Alberta end of the Lloydminster field. The Taber field, producing 328 bbls. in December, and Moose Dome, 798 bbls., did not report any production for January.

In Turner Valley, Royalite Oil Co. produced in January 70,457 bbls. of crude and 29,998 bbls. of naphtha. Other major producers were: Davies Petroleums, three wells, 26,090 bbls.; West Turner Petroleums, three wells, 24,258 bbls.; Brown Oil Corp., 22,949 bbls.; Sunset Oils, two wells, 22,750 bbls.; Royal Canadian Oil Co., two wells, 22,638 bbls. Among new producers, Home Oil Co. No. 2 Millarville led with 18,856 bbls. Other new wells were Extension Royalties No. 1, with 11,714 bbls., and D. & D. Oils No. 1, in part production, with 1,107 bbls.

Throughout the month, Turner Valley crude producers were prorated at 12,500 bbls. a day, but the actual aggregate deliveries were somewhat in excess of this figure.

California Standard Enters Field

Announcement has been made by S. E. Nord, vice president and general manager of Standard Oil Co. of British Columbia, Ltd., and R. H. B. Ker, president of the Home Oil Co., of an agreement under which Standard Oil Co. of California, of which the British Columbia company is a subsidiary, will develop acreage of the Home Oil Co. in North Turner Valley. The new arrangement follows the completion some weeks ago of Home Oil Co. No. 2 Millarville, LSD 6, Section 33-20-3w5, in North Turner Valley, which is now the largest producer in the entire Turner Valley field.

Standard Oil Co. of British Columbia, Canadian subsidiary of the California Standard, has a refinery at Burnaby, near Vancouver, which has already some Turner Valley crude; and also has bulk stations and retail outlets in British Columbia. Plans under consideration contemplate extension of marketing facilities throughout western Canada. Sites for bulk stations have already been secured at several important distributing centers, including Calgary. The tentative program of the California Co. includes the drilling of three wells this spring, with an ultimate total of 8 or 10 wells; further systematic development depending on the results secured from the initial tests. If satisfactory production is developed, refining facilities will be provided in Alberta, probably at Calgary, with a pipe line from the field. Development is also expected to result in the marketing of more Turner Valley crude to the British Columbia plant, with a possibility that pipe line facilities may ultimately be provided. John O. Galloway is in charge of Alberta operations, with headquarters at Calgary.

Tests in the Lime

On the Turner Valley west flank, Royalite Oil Co. No. 36, LSD 13-14, Section 32-18-2w5, finished at 7,910 feet, flowed 1,859 bbls. a day through 1-inch choke. Temporary allowable has been set at 291 bbls. In West Central Turner Valley, Royalite No. 37, LSD 11, Section 5-19-2w5, flowed 1,217 bbls. through 1-inch choke, and is waiting for temporary allowable.

In the far south, D. & D. Oils No. 1, LSD 12, Section 9-18-2w5, is testing, but no quota has yet been issued.

West of the proven crude area, Okalta Oil Co. No. 6, LSD 3, Section 30-18-2w5, cemented back to 9,994 feet, has been swabbed extensively, flowing for short periods under its own pressure. Pumping equipment will be installed to handle production from the upper porous horizon of the lime.

North Turner Valley

In North Turner Valley, Royalite Oil Co. No. 35, LSD 7, Section 27-20-3w5, is below 6,554 feet after getting the Madison limestone at 6,173 feet. It is expected to finish around 6,625 feet. It is the only test active in North Turner Valley, though considerable new drilling is expected to start this spring.

West Central Drilling

In West Central Turner Valley, Davolite Oil Co. No. 1, LSD 10, Section 18-19-2w5, has spudded. Location is more than 3 miles northwest of Vulcan-Brown No. 1, the nearest crude producer.

In Section 7-19-2w5, Valley Drilling Co. No. 1, LSD 11, is temporarily shut down at 350 feet.

In Section 29-18-2w5, Royal Canadian Oil Co. No. 3, LSD 12, is below 350 feet, with Snyder & Head handling the drilling. Royalite Oil Co. No. 39, LSD 3, is in the Belly River formation below 2,283 feet.

In Section 5-18-2w5, Theo Grewer No. 1, LSD 14, the farthest south active test, is below 300 feet.

West of the main field, Anglo-Canadian Oil Co. No. 5, LSD 8, Section 31-18-2w5, is in the Benton formation below 5,154 feet. Scottish Petroleums No. 1, LSD 16, Section 19-18-2w5, is below 5,928 feet. Royalite Oil Co. No. 38, LSD 16, Section 8-18-2w5, is in the Blairmore formation below 6,492 feet.

Royalite Oil Co. No. 41 has been spotted in LSD 1, Section 17-18-2w5, west of Royal Canadian No. 2 producer, north of Royalite No. 38 and northwest of Harris No. 1. It will be a further test of the potential southwest extension of the crude area.

Northwest of Home Oil Co. No. 2 Millarville, in North Turner Valley, Commoil, Ltd. has secured Section 34-22-4w5, from Ace Oils, Ltd. for 32,000 shares of stock, with a market value around $12,800. Location is about 11 miles northwest of the Home producer. Commoil, Ltd., which already has two producing wells in Section 29-18-2w5, is planning to drill this season on the new acreage.

Pacific Petroleums, Ltd. has been incorporated by British Columbia interests to take over the holdings of West Turner Petroleums, Ltd., including 160 acres in Section 32-18-2w5, with three producing wells. The new company will also take over 1,100 acres from Calgary & Edmonton Corp., of which about half is proven territory. Arrangements have been made with Calgary & Edmonton Corp. and Anglo-Canadian Oil Co. for a test in Section 19-3w5, west of the old Central Turner Valley field.

Highwood-Sarcee Oils, Ltd. of Calgary, with two small naphtha producers in South Turner Valley, is transferring its acreage, wells, surface rights and other properties to a newly organized subsidiary, Highwood Development, Ltd., which will handle any future development work. Highwood-Sarcee Oils, Ltd. will continue as a holding company.

Ontario Operations

In the Dover field, Kent County, Ontario, Prairie Oil & Gas Co. No. 7, E. Thomas farm, Raleigh Township, was drilled below the break in the Trenton limestone, getting a show of crude but no gas. It was shot, when the oil rose about 2,000 feet in the hole and some gas production developed. It is being put in shape for production.

In Chatham Township, Kent County, E. P. Rowe is drilling a deep test in Lot 6, Concession 1, south of No. 2 Highway and a short distance east of the Chatham city limits. The Rowe interests last year finished several shallow wells in the same area from which a fair pumping production is being taken. W. H. Stubble is handling the drilling contract on the deep test.

In the Haldimand field, Union Gas Co. No. 226, Lot 2, Concession 3, Rainham Township, finished at 940 feet with 25,000 cu. ft. a day.

In the Malahide area, Elgin County, Union Gas Co. No. 6, Lot 17, Concession 5, Malahide Township, is below 325 feet. Location is west of Union No. 5 producer, which got a fair gas flow around 1,085 feet. Union No. 7 is drilling around 330 feet in Lot 19, Concession 6, northwest of the discovery well.

Warwick Shallow Field

In the Warwick shallow field, Lambton County, a fair pumping production

(Continued on Page 108)

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Many operators are now applying RECTORSEAL to the field end of each casing joint . . . as run, not on the rack . . . And they're specifying to their pipe mill that collars be put on with RECTORSEAL . . . not petroleum soluble lubricants. In doing this they are avoiding future casing leaks, because experience shows that ordinary "dopes" soon lose their holding power when in contact with oil, while RECTORSEAL actually gains strength with aging.

One gallon of RECTORSEAL treats the field end (male thread) of: 1800' of 9⅝"; 2500' of 7" Range 2 pipe; or 3500' of 5½".

For full details on this and other profitable applications, write for RECTORSEAL Manual.

Buy RECTORSEAL from your Supply Dealer in container size to meet your requirements.

RECTOR WELL EQUIPMENT CO., INC.

HEADQUARTERS: Fort Worth, Texas. BRANCHES: Houston, Wichita Falls, Midland, Corpus Christi, Los Angeles, Tulsa, Shreveport, Casper.

LEGAL

NOTICE IS HEREBY GIVEN that there will be a meeting of the State Mineral Lease Commission of Mississippi in the office of the Governor of said state, at Jackson, at ten o'clock A. M. on Thursday, March 23, 1939.

At this meeting the Commission will receive bids for the leasing of the Mississippi Sound and other tidal lands on the Mississippi Coast, estimated as being more than 500,000 acres, for oil, gas and other mineral exploration and development. Any and all parties desiring to submit bids may receive copy of terms, requirements and specifications by writing the undersigned.

GREEK L. RICE, Attorney General, Secretary.

Summary of Operations, All Fields, February

SUMMARY OF ALL FIELDS

Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern fields	236	366	17	50
Lima	0	0	0	0
Central Ohio	58	70	18	31
Indiana	7	592	5	1
Illinois	243	42,123	39	3
Michigan	89	37,148	31	2
Kentucky	38	1,242	12	11
Kansas	92	24,414	25	3
Oklahoma	130	13,049	47	7
N. Central Texas	185	42,904	83	2
West Texas	150	113,644	18	0
Texas Panhandle	21	6,032	3	2
East Texas	48	2,252	1	0
E. Central Texas	13	1,605	3	4
E. Texas Border	2	235	0	0
Gulf Coast Tex.	119	27,450	20	7
S. W. Texas	247	24,628	62	8
North Louisiana	30	4,665	7	3
Gulf Coast La.	67	9,141	29	2
Arkansas	19	6,280	6	0
Montana	7	725	1	0
Nebraska	1	0	1	0
Wyoming	9	5,756	3	0
Colorado	2	0	2	0
New Mexico	42	26,393	4	0
Total Feb.	1,855	390,714	437	136
Total Jan.	1,894	391,956	434	140
Difference	39	1,242	3	4

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Eastern fields	55	232	287
Lima	1	10	11
Central Ohio	32	82	114
Illinois	54	296	350
Michigan	18	133	151
Kentucky	3	102	105
Kansas	32	139	171
Oklahoma	38	278	316
North Central Texas	113	235	348
West Texas	59	257	316
Texas Panhandle	25	70	95
East Texas	0	16	16
East Texas Border	7	6	13
East Central Texas	6	32	38
Gulf Coast Texas	18	104	122
Southwest Texas	31	202	233
North Louisiana	34	38	72
Gulf Coast Louisiana	14	94	108
Arkansas	14	19	33
Mississippi	7	1	8
Alabama	1	0	1
Florida	2	0	2
Montana	3	48	51
Nebraska	0	3	3
Wyoming	5	60	65
Colorado	1	29	30
New Mexico	10	123	133
Utah	1	3	4
Indiana	0	39	39
Total Feb.	584	2,651	3,235
Total Jan.	591	2,771	3,362
Difference	7	120	127

OKLAHOMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Alfalfa	0	0	0	0	1	0
Atoka	0	0	0	0	0	1
Beckham	1	0	1	0	0	2
Caddo	3	25	1	1	3	9
Carter	0	0	0	0	1	4
Choctaw	0	0	0	0	0	1
Cleveland	1	0	1	0	0	3
Coal	0	0	0	0	0	1
Comanche	1	0	1	0	1	4
Cotton	0	0	0	0	0	1
Creek	19	805	11	1	4	32
Ellis	0	0	0	0	1	1
Garfield	3	16	2	0	1	6
Garvin	0	0	0	0	1	1
Grady	2	175	1	0	1	3
Grant	0	0	0	0	0	1
Hughes	2	0	2	0	0	4
Jackson	1	73	0	0	1	6
Jefferson	1	15	0	0	0	2
Kay	0	0	0	0	0	3
Kingfisher	0	0	0	0	0	2
Kiowa	0	0	0	0	0	4
Lincoln	7	1,005	0	0	2	11
Logan	2	0	1	1	0	3
Love	0	0	0	0	0	1
Marshall	0	0	0	0	0	2
McIntosh	0	0	0	0	0	1
Murray	1	0	1	0	0	2
Muskogee	5	5	4	0	1	6
Noble	0	0	0	0	1	2
Okfuskee	5	40	2	1	1	8
Oklahoma	4	75	2	1	0	5
Okmulgee	4	0	4	0	2	21
Osage	4	195	0	0	2	7
Pawnee	3	43	1	0	0	5
Payne	6	3,614	0	0	2	5
Pittsburg	0	0	0	0	0	1
Pontotoc	10	517	1	0	1	16
Pottawatomie	23	4,339	2	0	6	40
Rogers	1	0	1	0	0	0
Sequoyah	0	0	0	0	0	1
Seminole	13	2,073	5	0	3	30
Stephens	2	28	0	0	0	7
Texas	0	0	0	0	0	1
Tillman	0	0	0	0	0	2
Tulsa	2	6	1	0	1	6
Wagoner	4	0	3	1	0	2
Washita	0	0	0	1	2	
Ttl. Feb.	130	13,049	47	7	38	278
Ttl. Jan.	106	7,935	45	7	35	270
Difference	24	5,114	2	0	3	8

KANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Barber	0	0	0	0	0	3
Barton	12	3,097	5	0	4	17
Butler	8	137	4	0	3	10
Cowley	8	1,646	3	0	1	11
Dickinson	0	0	0	0	0	1
Ellis	5	4,116	2	0	4	8
Ellsworth	0	0	0	0	1	1
Geary	0	0	0	0	0	1
Graham	0	0	0	0	0	2
Greenwood	4	221	2	0	1	10
Harvey	1	0	1	0	0	0
Kingman	1	0	1	0	1	2
Marion	1	0	1	0	0	4
Leavenworth	0	0	0	0	0	1
McPherson	2	146	1	0	0	7
Meade	0	0	0	0	0	1
Ness	0	0	0	0	1	0
Osage	0	0	0	0	0	1
Ottawa	0	0	0	0	0	1
Pratt	2	97	0	1	0	1
Reno	1	126	0	0	1	5
Rice	9	4,511	1	0	5	19
Rooks	1	175	0	0	0	2
Russell	12	5,911	1	0	5	16
Rush	0	0	0	0	0	1
Saline	0	0	0	0	0	1
Shawnee	0	0	0	0	0	1
Smith	0	0	0	0	0	1
Sedgwick	2	25	1	0	1	3
Stafford	19	4,075	1	0	4	6
Stevens	2	0	0	2	0	0
Sumner	1	131	0	0	0	1
Woodson	1	0	1	0	0	1
Ttl. Feb.	92	24,414	25	3	32	139
Ttl. Jan.	69	22,132	18	2	19	153
Difference	23	2,282	7	1	13	14

NORTH CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Archer	30	2,733	13	0	8	17
Baylor	1	0	1	0	0	1
Brown	2	10	1	0	2	13
Callahan	5	30	3	1	2	12
Clay	12	830	8	0	3	4
Coleman	3	15	2	0	2	4
Comanche	2	0	2	0	0	4
Cooke	8	2,467	5	0	4	8
Coryell	0	0	0	0	0	1
Denton	0	0	0	0	1	2
Erath	0	0	0	0	0	2
Eastland	3	0	3	0	3	4
Fisher	1	0	1	0	0	2
Foard	2	361	1	0	0	1
Hamilton	0	0	0	0	0	2
Haskell	2	0	2	0	2	0
Hood	0	0	0	0	0	1
Jack	14	826	6	0	5	10
Johnson	0	0	0	0	0	1
Jones	17	16,401	3	0	10	25
Montague	5	323	2	0	0	4
Palo Pinto	2	15	1	0	0	3
Parker	0	0	0	0	0	1
Shackelford	17	1,158	5	1	6	22
Stephens	0	0	0	0	2	4
Tarrant	0	0	0	0	1	2
Taylor	4	9	3	0	1	2
Throckmorton	2	0	2	0	0	2
Wichita	29	17,445	3	0	44	43
Wilbarger	7	181	3	0	4	6
Wise	0	0	0	0	1	3
Young	17	100	13	0	12	29
Ttl. Feb.	185	42,904	83	2	113	235
Ttl. Jan.	165	43,477	56	3	94	239
Difference	20	573	27	1	19	4

SOUTHWEST TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Agua Dulce	2	0	0	2	0	3
Alice (South)	14	1,367	0	0	2	4
Alta Mesa	0	0	0	0	0	1
Angelita	1	20	0	0	0	0
Batesville	1	0	1	0	0	1
Benavides	2	304	0	0	0	3
Bird Island	0	0	0	0	0	1
Blucher	1	28	0	0	0	0
Branyon	2	0	2	0	0	2
Callihan	0	0	0	0	0	1
Carroll	0	0	0	0	0	1
Church	1	0	1	0	0	0
Casa Blanca	6	155	2	0	0	2
Cedar Creek	0	0	0	0	0	1
Cedro Hill	0	0	0	0	0	1
Chicon Lake	0	0	0	0	1	5
Clara Driscoll	4	381	0	0	2	5
Colmena	0	0	0	0	1	0
Coffey	0	0	0	0	0	3
Comitas	6	247	1	0	1	1
Dale	2	165	1	0	0	1
Darst Creek	4	114	1	0	0	3
Driscoll	1	149	0	0	0	1
Dunlap	1	17	0	0	0	0
Eagle Hill	4	168	0	0	1	0
E. Placedo	0	0	0	0	0	1
Eckert	0	0	0	0	0	1
E. Premont	0	0	0	0	0	1
Escobas	3	84	1	0	0	1
E. White Pt.	9	1,288	0	0	2	6
Ezzell	9	1,160	1	0	0	2
Fitzsimmons	6	649	1	0	1	1
Flour Bluff	1	221	0	0	0	0
Glenn	1	18	0	0	0	0
Heyser	7	920	1	1	1	2
Hoffman	12	990	4	0	1	4
Kelsey	3	282	0	0	0	3
Killam	1	30	0	0	0	0
Kimbro	1	6	0	0	0	0
Kingsbury	1	39	0	0	0	0
Keeran	0	0	0	0	0	2
La Sal Vieja	0	0	0	0	0	1
Lockhart	0	0	0	0	0	1
La Rosa	1	1,174	0	0	0	5
Longhorn	5	580	1	0	1	2
Luby	5	582	0	0	0	4
Luling	0	0	0	0	0	2
Lundell	3	478	0	1	0	3
Manda	1	0	1	0	0	0
McCampbell	21	5,701	0	0	4	23
McAllen	1	90	0	0	0	0
McFaddin	4	517	0	0	1	1
Mellon Creek	1	104	0	0	0	2
Mirando Valley	3	280	0	0	0	3
Munson	1	130	0	0	0	0
N. Agua Dulce	1	0	1	0	0	1
Nash Creek	0	0	0	0	0	1
O'Hern	1	60	0	0	0	0
N. Killam	4	30	3	0	0	0
Oakville	1	102	0	0	0	1
Palanaga	0	0	0	0	0	1
Piedra De Lumbre	3	152	0	1	0	1
Piedra Pintas	1	60	0	0	0	0
Plymouth	2	192	0	0	0	1
Rancho Solo	4	275	1	0	0	1
Refugio	2	232	0	0	0	2
Rhodes	0	0	0	0	0	1
Richard King	0	0	0	0	0	1
Riddle	0	9	0	0	0	2
Riverside	1	0	1	0	0	3
Rockdale	3	5	1	0	0	1
Salt Flat	5	382	0	0	2	7
Samfordyce	6	610	1	0	1	6
Saxet	4	479	0	0	1	3
Slick	0	0	0	0	1	0
South Clara Driscoll	0	0	0	0	1	2
Somerset	1	10	0	0	0	1
Stratton	0	0	0	0	0	1
Sun	2	0	1	1	0	3
Tesoro	0	0	0	0	0	2
Tomoconnor	4	2,827	0	0	0	3
Turney	1	5	0	0	0	0
Tulsita	0	0	0	0	0	1
Yoast	0	0	0	0	0	2
Weser	1	0	0	1	0	1
W. Saxet	6	621	0	0	0	1
Walnut Creek	1	0	1	0	0	0
White Point	1	112	0	0	0	0
White Creek	1	27	0	0	0	0
Zoboroski	0	0	0	0	0	1
Miscellaneous	33	0	33	0	7	40
Ttl. Feb.	247	24,628	62	8	31	202
Ttl. Jan.	175	18,135	45	5	36	174
Difference	72	6,493	17	3	5	28

WEST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Andrews	12	13,685	2	0	1	12
Brewster	0	0	0	0	0	2
Borden	0	0	0	0	0	1
Cochran	0	0	0	0	0	1
Coke	1	0	1	0	0	0
Crane	7	4,553	1	0	1	15
Crockett	3	256	0	0	2	2
Culberson	0	0	0	0	0	3
Concho	1	0	1	0	0	2
Dawson	0	0	0	0	0	2
Ector	48	52,130	2	0	15	44
El Paso	1	0	1	0	0	0
Gaines	4	6,185	0	0	0	3
Garza	0	0	0	0	0	1
Glasscock	0	0	0	0	0	4
Hockley	0	0	0	0	0	3
Howard	7	3,621	1	0	4	22
Hudspeth	0	0	0	0	0	2
Irion	0	0	0	0	0	3
Kent	0	0	0	0	0	2
Kimble	2	0	2	0	0	0
Loving	0	0	0	0	1	0
Lynn	0	0	0	0	0	1
Martin	0	0	0	0	0	1
Nolan	1	0	1	0	0	1
Pecos	14	2,320	4	0	8	32
Presidio	0	0	0	0	0	2
Reeves	0	0	0	0	0	2
Runnels	0	0	0	0	0	1
Schleicher	0	0	0	0	0	4
Scurry	1	0	1	0	1	5
Stonewall	0	0	0	0	0	2
Sutton	0	0	0	0	0	2
Terrell	0	0	0	0	0	1
Tom Green	0	0	0	0	1	3
Upton	5	2,494	1	0	1	11
Ward	19	5,183	0	0	12	15
Winkler	9	3,506	0	0	1	15
Yoakum	16	19,711	0	0	11	35
Ttl. Feb.	150	113,644	18	0	59	257
Ttl. Jan.	158	120,678	11	1	68	263
Difference	8	7,034	7	1	9	6

TEXAS PANHANDLE

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Carson	5	1,295	0	1	1	7
Collingsworth	0	0	0	0	0	2
Deaf Smith	0	0	0	0	0	1
Donley	1	0	1	0	0	1
Dickens	0	0	0	0	0	4
Floyd	0	0	0	0	0	1
Gray	5	1,361	0	0	9	15
Hutchinson	5	2,502	0	0	13	22
Lipscomb	0	0	0	0	0	1
Moore	2	0	2	0	2	8
Motley	0	0	0	0	0	1
Potter	1	0	0	1	0	1
Roberts	0	0	0	0	0	2
Wheeler	2	874	0	0	0	4
Ttl. Feb.	21	6,032	3	2	25	70
Ttl. Jan.	35	11,892	5	4	16	63
Difference	14	5,860	2	2	9	7

EASTERN TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Anderson	1	0	0	1	0	2
Cherokee	0	0	0	0	0	1
Dallas	0	0	0	0	0	1
Falls	0	0	0	0	0	1
Franklin	4	1,102	0	0	0	2
Freestone	2	0	1	1	0	2
Grayson	1	0	1	0	2	4
Gregg	23	1,040	1	0	0	6
Henderson	1	0	0	1	1	1
Houston	2	104	1	0	0	2
Kaufman	0	0	0	0	3	2
Lamar	0	0	0	0	0	1
Leon	1	0	0	1	0	1
Limestone	0	0	0	0	0	1
McLennan	0	0	0	0	0	3
Navarro	0	0	0	0	0	1
Rains	0	0	0	0	0	1
Red River	0	0	0	0	0	3
Rusk	21	1,047	0	0	0	4
Smith	1	45	0	0	0	3
Titus	1	399	0	0	0	1
Trinity	0	0	0	0	0	1
Upshur	3	120	0	0	0	2
Van Zandt	0	0	0	0	0	1
Wood	0	0	0	0	0	1
Ttl. Feb.	61	3,857	4	4	6	48
Ttl. Jan.	116	6,154	12	1	21	62
Difference	55	2,297	8	3	15	14

TEXAS GULF COAST

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Ace	1	493	0	0	0	1
Amelia	0	0	0	0	0	3
Anahuac	5	2,660	0	0	0	2
Batson	2	32	1	0	0	2
Bay City	1	223	0	0	0	1
Barbers Hill	0	0	0	0	0	3
Bammel	1	0	0	1	1	0
Big Creek	1	0	1	0	0	1
Boling	1	0	1	0	0	1
Cedar Point	0	0	0	0	1	0
Clear Lake	2	190	1	0	0	1
Clam Lake	1	150	0	0	0	0
Clinton	1	0	1	0	0	0
Cotton Lake	1	132	0	0	0	1
Cordele	1	108	0	0	0	1
Danbury	1	0	1	0	0	3
Dickinson	4	734	0	0	1	6
Eureka	5	1,614	0	0	0	2
Esperson	0	0	0	0	0	1
Fannett	0	0	0	0	0	1
Fairbanks	21	3,844	1	0	2	10
Francitas	0	0	0	0	1	0
Friendswood	11	6,285	0	0	1	4
Garwood	1	70	0	0	0	0
Hardin	2	867	0	0	0	3
Hastings	3	1,155	1	0	0	2
High Island	0	0	0	0	0	1
Katy	1	0	0	1	0	1
League City	2	1,194	0	0	1	6
Lockridge	1	72	0	0	0	1
Lovells Lake	2	24	1	0	1	3
Labelle	0	0	0	0	1	0
Magnet	3	244	0	0	0	1
Manvel	0	0	0	0	0	2
Old Ocean	4	824	0	0	0	4
Orange	5	1,137	0	0	1	5
Pickett Ridge	2	30	0	1	0	1
Port Neches	0	0	0	0	0	1
Seabreeze	1	0	1	0	0	2
Segno	2	1,000	0	0	0	3
Spindletop	1	0	1	0	0	1
Spurger	2	867	0	0	0	1
Thompson	3	104	2	0	1	1
Tomball	8	2,019	0	3	1	1
Turtle Bay	0	0	0	0	1	0
Van Vleck	0	0	0	0	0	2
West Ranch	2	363	0	0	0	1
W. Columbia	1	491	0	0	0	5
Withers	5	524	0	0	0	3
Miscellaneous	8	0	8	0	3	9
Ttl. Feb.	119	27,450	20	7	18	104
Ttl. Jan.	100	24,939	16	7	24	100
Difference	19	2,511	4	0	6	4

COASTAL LOUISIANA

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bayou Blue	2	0	2	0	1	0
Bancroft	2	668	0	0	2	2
Bateman Lake	0	0	0	0	0	1
Bay St. Elaine	1	490	0	0	0	1
Bayou Boullion	1	0	0	1	0	0
Bayou Des Allemands	0	0	0	0	0	1
Black Bayou	0	0	0	0	0	1
Caillou Island	1	0	1	0	1	0
Cameron Meadows	0	0	0	0	0	1
Chalkley	1	460	0	0	0	1
Creole	0	0	0	0	0	1
Chacahoula	0	0	0	0	0	2
Charenton	3	45	2	0	0	3
Choctaw	0	0	0	0	0	2
Convent	0	0	0	0	0	1
Darrow	2	0	2	0	0	1
Dog Lake	0	0	0	0	0	1
E. Baton Rouge	2	555	0	0	1	1
Edgerly	1	0	1	0	0	0
Eola	0	0	0	0	0	5
Fausse Point	0	0	0	0	0	1
Garden Island	0	0	0	0	0	1
Gillis	1	91	0	0	0	2
Golden Meadows	0	0	0	0	0	3
Grand Bay	1	284	0	0	0	1

Gueydan	1	0	1	0	0	0
Hackberry	6	958	2	1	1	7
Horseshoe Bayou	0	0	0	0	0	1
Jeanerette	2	0	2	0	0	0
Jefferson Island	0	0	0	0	0	2
Jennings	7	1,975	2	0	2	4
Lafitte	1	0	1	0	0	2
Lake Hermitage	1	84	0	0	0	0
Lake Long	1	40	0	0	0	0
Lake Pelto	1	64	0	0	1	0
Lake Verret	1	210	0	0	0	0
Leesville	2	64	1	0	0	1
Lirette	0	0	0	0	0	1
N. Crowley	0	0	0	0	0	1
N. Tepetate	2	207	0	0	0	2
New Iberia	1	150	0	0	0	8
Port Barre	1	392	0	0	0	1
Potash	0	0	0	0	0	1
Quarantine Bay	1	680	0	0	1	0
Raceland	1	0	1	0	0	1
S. Houma	0	0	0	0	0	1
S. Roanoke	0	0	0	0	0	1
Starks	1	0	1	0	0	0
Sweet Lake	1	184	0	0	0	0
Sulphur	1	10	0	0	0	2
Timbalier Bay	0	0	0	0	0	1
Valentine	1	239	0	0	0	1
Venice	2	243	1	0	1	0
Villa Platte	4	954	0	0	0	5
Vinton	2	94	1	0	0	0
Woodlawn	1	0	1	0	0	2
Miscellaneous	7	0	7	0	3	16
Ttl. Feb.	67	9,141	29	2	14	94
Ttl. Jan.	52	14,336	16	1	11	108
Difference	15	5,195	13	1	3	14

ARKANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Calhoun	0	0	0	0	1	0
Columbia	4	3,700	0	0	2	8
Craighead	0	0	0	0	1	0
Hot Springs	0	0	0	0	0	1
Lafayette	2	0	2	0	1	0
Little River	0	0	0	0	2	0
Lonoke	1	0	1	0	2	1
Miller—Rodessa	3	1,560	0	0	2	1
Mississippi	0	0	0	0	0	1
Nevada	2	75	1	0	1	0
Ouachita	1	0	1	0	0	1
Union	6	945	1	0	2	6
Ttl. Feb.	19	6,280	6	0	14	19
Ttl. Jan.	30	11,210	8	1	15	22
Difference	11	4,930	2	1	1	3

EAST TEXAS BORDER

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Harrison	0	0	0	0	2	1
Marion—Rodessa	1	230	0	0	0	4
Marion—Other	1	5	0	0	3	0
Panola	0	0	0	0	1	0
Sabine	0	0	0	0	1	0
Shelby	0	0	0	0	0	1
Ttl. Feb.	2	235	0	0	7	6
Ttl. Jan.	10	1,905	1	1	9	2
Difference	8	1,670	1	1	2	4

NORTH LOUISIANA

Summary of Field Operations

Parish—	Comp.	Prod.	Dry	Gas*	Rgs.	Dlg.
Bienville	0	0	0	0	1	0
Bossier	0	0	0	0	1	1
Caddo—Rodessa	0	0	0	0	0	1
Caddo—Other	15	2,155	3	0	12	13
Caldwell	1	0	1	0	1	0
Claiborne	0	0	0	0	0	1
De Soto	0	0	0	0	1	1
Grant	0	0	0	0	1	1
La Salle	2	5	1	0	3	0
Natchitoches	0	0	0	0	0	1
Ouachita	1	0	0	1	1	0
Red River	0	0	0	0	1	1
Sabine	6	320	2	0	3	3
Tensas	0	0	0	0	1	0
Union	1	0	0	1	0	2
Webster	4	2,185	0	1	2	13
Ttl. Feb.	30	4,665	7	3	34	38
Ttl. Jan.	44	5,890	18	8	23	37
Difference	14	1,225	11	5	11	1

*Gas production: Ouachita Parish, 2,500,000 cu. ft.; Union Parish, 500,000 cu. ft.; Webster Parish, 1,460,000 cu. ft.

FLORIDA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Lake	0	0	0	0	1	0
Nassau	0	0	0	0	1	0
Ttl. Feb.	0	0	0	0	2	0
Ttl. Jan.	0	0	0	0	2	0
Difference	0	0	0	0	0	0

MISSISSIPPI

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Calhoun	0	0	0	0	1	0
Clark	0	0	0	0	1	0
Hinds	0	0	0	0	2	0
Madison	0	0	0	0	0	1
Simpson	0	0	0	0	2	0
Yalobusha	0	0	0	0	1	0
Ttl. Feb.	0	0	0	0	7	1
Ttl. Jan.	0	0	0	0	6	1
Difference	0	0	0	0	1	0

ALABAMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Barbour	0	0	0	0	1	0
Ttl. Feb.	0	0	0	0	1	0

ROCKY MOUNTAIN AREA

New Mexico

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bernalilli	0	0	0	0	0	2
McKinley	0	0	0	0	0	3
Rio Arriba	1	0	1	0	0	0
San Juan	2	22	1	0	1	9
San Miguel	0	0	0	0	0	3
Socorro	0	0	0	0	0	1
Torrance	0	0	0	0	0	2
Valencia	0	0	0	0	0	3
Lea	36	25,846	2	0	5	70
Eddy	3	525	0	0	2	25
Chaves	0	0	0	0	2	2
De Baca	0	0	0	0	0	2
Roosevelt	0	0	0	0	0	1
Ttl. Feb.	42	26,393	4	0	10	123
Ttl. Jan.	48	21,492	7	1	12	126
Difference	6	4,901	3	1	2	3

Wyoming

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Big Horn	0	0	0	0	0	7
Campbell	0	0	0	0	0	3
Carbon	1	0	1	0	0	2
Converse	0	0	0	0	0	9
Fremont	0	0	0	0	0	6
Natrona	0	0	0	0	1	1
Niobrara	6	5,706	1	0	1	10
Park	0	0	0	0	0	3
Sublette	0	0	0	0	0	4
Sweetwater	1	50	0	0	0	1
Uinta	0	0	0	0	0	4
Weston	1	0	1	0	3	6
Miscellaneous	0	0	0	0	0	4
Ttl. Feb.	9	5,756	3	0	5	60
Ttl. Jan.	12	209	6	0	4	62
Difference	3	5,347	3	0	1	2

Colorado

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Adams	0	0	0	0	0	2
Archuleta	0	0	0	0	0	3
Huerfano	0	0	0	0	0	2
La Plata	0	0	0	0	0	1
Las Animas	0	0	0	0	0	2
Mesa	0	0	0	0	0	1
Moffat	0	0	0	0	0	3
Park	0	0	0	0	0	2
Prowers	1	0	1	0	0	0
Pueblo	0	0	0	0	1	2
Rio Blanco	0	0	0	0	0	1
Routt	1	0	1	0	0	2
Miscellaneous	0	0	0	0	0	8
Ttl. Feb.	2	0	2	0	1	29
Ttl. Jan.	4	360	3	0	1	30
Difference	2	360	1	0	0	1

Montana

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Big Horn	0	0	0	0	0	2
Carbon	1	0	1	0	0	6
Fergus	0	0	0	0	0	5
Glacier	3	477	0	0	3	5
Hill	0	0	0	0	0	2
Petroleum	0	0	0	0	0	2
Teton	0	0	0	0	0	2
Toole	3	248	0	0	0	12
Yellowstone	0	0	0	0	0	1
Miscellaneous	0	0	0	0	0	11
Ttl. Feb.	7	725	1	0	3	48
Ttl. Jan.	13	305	4	1	0	51
Difference	6	420	3	1	3	3

Utah

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Total Feb.	0	0	0	0	1	3
Total Jan.	0	0	0	0	1	3
Difference	0	0	0	0	0	0

EASTERN KENTUCKY

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Magoffin	0	0	0	0	0	1
Powell	2	3	1	0	0	2
Lee	1	5	0	0	0	2
Knott	0	0	0	0	1	5
Martin	0	0	0	0	0	5
Floyd	6	38	1	4	0	4
Pike	5	0	1	4	1	2
Wolfe	0	0	0	0	0	3
Ttl. Feb.	14	46	3	8	2	24
Ttl. Jan.	9	43	1	4	0	30
Difference	5	3	2	4	2	6

WESTERN KENTUCKY

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Breckenridge	0	0	0	0	0	3
Butler	2	16	0	0	0	3
Caldwell	0	0	0	0	0	1
Christian	0	0	0	0	0	2
Daviess	8	620	2	0	1	21
Grayson	0	0	0	0	0	2
Hancock	1	0	1	0	0	7
Henderson	5	550	1	1	0	12
Hopkins	1	0	0	1	0	2
McLean	3	0	2	1	0	3
Muhlenberg	0	0	0	0	0	4
Ohio	4	10	3	0	0	14
Todd	0	0	0	0	0	1
Union	0	0	0	0	0	1
Webster	0	0	0	0	0	2
Ttl. Feb.	24	1,196	9	3	1	78
Ttl. Jan.	36	971	26	1	6	85
Difference	12	225	15	2	5	7

ILLINOIS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bond	1	0	1	0	0	8
Champaign	0	0	0	0	0	1
Clark	0	0	0	0	1	4
Clay	20	4,737	0	0	3	10
Christian	0	0	0	0	0	1
Clinton	5	255	1	0	2	21
Coles	1	18	0	0	1	2
Crawford	0	0	0	0	0	4
Cumberland	3	0	3	0	0	1
Edgar	0	0	0	0	0	4
Edwards	1	0	1	0	0	1
Effingham	0	0	0	0	0	2
Fayette	63	15,964	7	1	15	60
Franklin	0	0	0	0	0	2
Fulton	1	0	1	0	0	1
Gallatin	0	0	0	0	0	4
Hamilton	0	0	0	0	0	1
Hancock	0	0	0	0	0	2
Jackson	0	0	0	0	0	1
Jefferson	3	200	2	0	1	9
Johnson	0	0	0	0	0	1
Jasper	0	0	0	0	0	2
Knox	0	0	0	0	0	1
Lawrence	6	24	3	2	2	7
McDonough	0	0	0	0	0	1
Macon	1	0	1	0	0	1
Menard	0	0	0	0	0	1
Monroe	0	0	0	0	0	1
Madison	1	0	1	0	0	3
Marion	112	19,378	5	0	19	78
Massac	0	0	0	0	0	2
Montgomery	2	0	2	0	2	4
Perry	0	0	0	0	0	2
Pike	0	0	0	0	0	1
Randolph	1	0	1	0	0	3
Richland	5	855	0	0	1	8
Sangamon	1	0	1	0	0	0
St. Clair	2	140	0	0	0	3
Saline	0	0	0	0	0	2
Shelby	1	0	1	0	1	7
Tazewell	1	0	1	0	0	0
Union	0	0	0	0	0	1
Warren	0	0	0	0	0	1
Wabash	3	0	3	0	0	3
Washington	3	25	2	0	0	5
White	0	0	0	0	2	2
Wayne	6	527	2	0	4	16
Ttl. Feb.	243	42,123	39	3	54	296
Ttl. Jan.	303	58,528	41	3	62	389
Difference	60	16,405	2	0	8	93

INDIANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Blackford	0	0	0	0	0	1
Crawford	0	0	0	0	0	2
Daviess	0	0	0	0	0	2
Dearborn	0	0	0	0	0	1
DuBois	0	0	0	0	0	2
Gibson	1	592	0	0	0	5
Knox	1	0	1	0	0	4
Martin	0	0	0	0	0	1
Monroe	0	0	0	0	0	1
Orange	0	0	0	0	0	1
Perry	0	0	0	0	0	1
Pike	1	0	0	1	0	3
Posey	1	0	1	0	0	2
Spencer	1	0	1	0	0	4
Sullivan	0	0	0	0	0	3
Vanderburgh	2	0	2	0	0	0
Vigo	0	0	0	0	0	2
Warrick	0	0	0	0	0	3
White	0	0	0	0	0	1
Ttl. Feb.	7	592	5	1	0	39
Ttl. Jan.	11	75	4	4	3	35
Difference	4	517	1	3	3	4

MICHIGAN

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Adams	0	0	0	0	1	5
Beaverton	0	0	0	0	0	1
Bentley	0	0	0	0	0	1
Bl'mingdale	24	12,278	4	0	2	22
Clayton	0	0	0	0	0	1
Columbia	3	102	1	0	1	4
Deerfield	0	0	0	0	0	1
Dorr	0	0	0	0	0	2
Edmore	1	0	0	1	0	1
Freeman	12	18,557	0	0	3	23
G. Rapides	2	841	0	0	0	4
Hopkins	1	400	0	0	0	0
Loomis	0	0	0	0	0	2
New Salem	6	2,678	2	0	2	4
Skunk Lake	6	726	1	0	1	3
Stewart	2	775	0	0	1	3
Ravenna	1	0	0	1	0	1
Trowbridge	0	0	0	0	0	2
W. Branch	3	267	0	0	0	2
Winfield	0	0	0	0	1	0
Wisner	1	55	0	0	0	1
Salem	3	404	0	0	1	2
Wildcats	24	65	23	0	5	48
Total Feb.	89	37,148	31	2	18	133
Total Jan.	83	21,058	39	1	25	125
Difference	6	16,090	8	1	7	8

LIMA FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Adams	0	0	0	0	0	1
Auglaize	0	0	0	0	0	2
Brown	0	0	0	0	0	1
Greene	0	0	0	0	0	1
Henry	0	0	0	0	0	1
Putnam	0	0	0	0	1	1
Seneca	0	0	0	0	0	1
Wood	0	0	0	0	0	2
Ttl. Feb.	0	0	0	0	1	10
Ttl. Jan.	4	0	3	1	1	6
Difference	4	0	3	1	0	4

CENTRAL OHIO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Ashland	1	0	1	0	1	0
Athens	1	0	1	0	2	5
Coshocton	1	0	1	0	2	0
Cuyahoga	1	30	0	0	1	4
Fairfield	1	0	0	1	0	2
Gallia	0	0	0	0	1	0
Geauga	1	0	1	0	0	0
Guernsey	1	0	1	0	0	9
Harrison	1	0	1	0	0	0
Hocking	1	0	0	1	0	0
Holmes	1	0	1	0	2	1
Huron	0	0	0	0	0	1
Knox	5	0	2	3	2	6
Lawrence	3	0	2	1	0	2
Licking	6	0	0	6	7	3
Lorain	2	0	1	1	0	2
Medina	3	20	0	2	2	2
Meigs	3	0	1	2	1	3
Monroe	1	0	0	1	1	2
Morgan	1	1	0	0	2	1
Muskingum	2	1	1	0	0	3
Noble	4	0	0	4	2	6
Perry	3	12	0	1	1	5
Richland	0	0	0	0	0	2
Stark	1	0	0	1	1	9
Summit	1	0	1	0	0	1
Tuscarawas	1	0	0	1	0	3
Washington	11	6	3	5	4	9
Wayne	1	0	0	1	0	1
Ttl. Feb.	58	70	18	31	32	82
Ttl. Jan.	61	59	23	33	35	97
Difference	3	11	5	2	3	15

EASTERN FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Allegany	21	20	0	0	3	16
Bradford	122	135	0	0	11	44
Middle field	11	33	0	0	4	11
N. Y.-Pa. gas area	9	0	3	6	9	21
Butler-Armstrong	5	12	1	0	2	9
S. W. Pa.	5	15	2	2	3	19
W. Virginia	25	40	4	15	6	27
S. E. Ohio	38	111	7	27	17	85
Ttl. Feb.	236	366	17	50	55	232
Ttl. Jan.	250	273	26	50	63	235
Difference	14	93	9	0	8	3

Canadian Fields

(Continued from Page 106)

is being maintained, though operations have been hindered by cold weather. A small producer brought in by W. J. Hussey on the Art Williamson farm, Lot 22, Concession 4, was treated with hydrochloric acid, developing a good pumper. W. J. Hussey has moved his Morning Glory rig to the Marley farm (William Pike homestead) to drill for Thomas Draper of Port Huron. William Windover has moved his outfit to the Andrew Morgan farm for a test for Wilson & Sullivan. Doctor Vonberg of Detroit has started No. 4 test on the Lloyd Easterbrook farm, Lot 26, Concession 5, with Sam McMaster of Bothwell drilling. Andrew Heal is drilling No. 4 on the Sam Burchill farm, Lot 27, Concession 5. Ted Holmes has a location for Doctor Vonberg on the back-end of the John O'Neill farm, 27 Sideroad. J. McGaffey is drilling a test for Beatty Brothers of Glencoe on the Thomas Woods farm. In the eastern end of the field, Percy Jackson of Dunnville will drill No. 3 test on the J. Albert Brush farm, Lot 30, Concession 5, just west of the Middlesex-Lambton line.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Antelope Valley Oil, No. 1 Palmdale, Los Angeles	17- 6-12	1,357	idle
Texas Co., No. 1 Anderson, Ocean Park, Los Ang.	17- 2-15	7,336	sd. sh. drlg.
Rolling Hills Pet., No. 1 Weston, Palos Verdes, L. A.	27- 4-14	5,406	idle
A. B. C. Oil, No. 1 Angelich, Torrance, Los Angeles	23- 4-14	3,997	sd. sh. drlg.
Alford Dev., No. 31 Bell, Torrance, Los Angeles ..	23- 4-14	5,122	flow 148 b.d.
Centura Oil, No. 1 Smith, Torrance, Los Angeles ..	23- 4-14	416	sd. sh. drlg.
Cinco Oil, No. 1 Woodruff, Torrance, Los Angeles	23- 4-14	3,600	cleaning out
Cuba Oil, No. 2 Conrell, Torrance, Los Angeles .	23- 4-13	4,960	O.S. drlg.
Campeet. Oil, No. 17-A Kleinmyer, Torrance, L. A.	23- 4-14	5,021	sd. sh. drlg.
Critton & Colvin, No. 1 Clark, Torrance, Los Ang.	23- 4-14	5,178	tested wet
Elliott, D. W., No. 10 Kettler, Torrance, Los Ang.	23- 4-14	5,147	flow 602 b.d.
Golden Bear Oil, No. 1 Goemarey, Torrance, L. A.	23- 4-14	3,692	sd. sh. drlg.
Hathaway Oil, No. 1 Myers, Torrance, Los Angeles	23- 4-14	5,160	sd. sh. drlg.
Hydrocarbon Prod., No. 1 Duchess, Torrance, L. A.	23- 4-14	2,984	sd. sh. drlg.
Kern Pet., No. 1 Neher, Torrance, Los Angeles ..	23- 4-14	5,120	flow 200 b.d.
Kirk, W. A., No. 9 Lomita, Torrance, Los Angeles	23- 4-14	5,095	O.S. drlg.
Kilgore, S. H., No. 1 Mitchell, Torrance, Los Ang.	23- 4-14	3,980	redrlg. 3,750
Kovell Oil, No. 2 Deep Hole, Torrance, Los Angeles	23- 4-14	2,996	sd. sh. drlg.
L. M. S. Oil, No. 1-A Kettler, Torrance, Los Angeles	23- 4-14	5,160	flow 810 b.d.
Lebow-McNee Oil, No. 1-B Kettler, Torrance L. A.	23- 4-14	....	rigging up
Lone Star Drlg., No. 1 Pestor, Torrance, Los A.	23- 4-14	....	rigging up
McCaslin, W. E., No. 1 Robertson, Torrance, L. A.	23- 4-14	2,168	sd. sh. drlg.
Pacific West. Oil, No. 7 Marble, Torrance, L. A.	15- 4-14	4,990	redrlg. 2,691
Pettijohn, J. E., No. 1 Adele, Torrance, Los Angeles	23- 4-14	5,161	flow 710 b.d.
Peters Roy., No. 1 Bass, Torrance, Los Angeles ..	23- 4-14	4,880	fish D.P.
Rilling & Co., No. 1 H. & H., Torrance, Los Angeles	23- 4-14	4,694	sd. sh. drlg.
Standard Oil, No. 1-11 Marble, Torrance, Los A.	22- 4-14	3,825	rigging up
Sunset Oil, No. 1 La Salle, Torrance, Los Angeles	23- 4-14	2,598	sd. sh. drlg.
Vesta Pet., No. 1 Bruhn, Torrance, Los Angeles ..	23- 4-14	5,110	O.S. drlg.
Woolner Oil, No. 7 Lomita, Torrance, Los Angeles	23- 4-14	5,139	O.S. drlg.
Wilson, Ray, No. 3 Lomita, Torrance, Los Angeles	23- 4-14	4,780	sd. sh. drlg.
Whit. S. F. S. Synd., No. 1 Mertz, Torrance, L. A.	23- 4-14	2,586	sd. sh. drlg.
C. C. M. O., No. 41, Torrance, Los Angeles	15- 4-14	4,922	sd. sh. drlg.
C. C. M. O., No. 51, Torrance, Los Angeles	14- 4-14	5,028	O.S. drlg.
C. C. M. O., No. 12 Kettler, Torrance, Los Angeles	14- 4-14	3,825	rigged up
Texas Co., No. 4 Oakley, Harbor City, Los Angeles	30- 4-13	5,050	sd. sh. drlg.
Union Oil, No. 25 Callender, Dominguez, Los A.	33- 3-13	4,860	sd. sh. drlg.
Union Oil, No. 66 Callender, Dominguez, Los A.	33- 3-13	6,770	sd. sh. drlg.
Union Oil, No. 11 Carson, Dominguez, Los Angeles	33- 3-13	4,563	sd. sh. drlg.
Union Oil, No. 49 Hellman, Dominguez, Los Angeles	33- 3-13	9,474	cmtd. 6,305
Shell Oil, No. 97 Reyes, Dominguez, Los Angeles	33- 3-13	9,740	sd. sh. drlg.
Barnsdall Oil, No. 12 Rosecrans, Rosecrans, L. A.	20- 3-13	7,652	O.S. drlg.
Bankline Oil, No. 2 Kirby, Rosecrans, Los Angeles	20- 3-13	7,701	flow 310 b.d.
Metcalfe Oil, No. 1 Bradford, Rosecrans, Los A.	20- 3-13	6,567	sd. sh. drlg.
Union Oil, No. 31 Rosecrans, Rosecrans, Los A.	19- 3-13	5,674	sd. sh. drlg.
Universal Consd., No. 10 Trust, Rosecrans, L. A.	18- 3-13	7,757	flow 735 b.d.
Superior Oil, No. 12 Maxwell, Rosecrans, L. A.	19- 3-13	7,696	flow 340 b.d.
Howard Oil, No. 1 H. O., Rosecrans, Los Angeles	20- 3-13	5,592	idle
Basin Oil, No. 4 Club, Potrero, Los Angeles	34- 2-14	4,598	sd. sh. drlg.
Barnsdall Oil, No. 5 R. S. F., Newhall, Los Angeles	26- 4-17	6,441	cmtd.
Standard Oil, No. 1 Ward, Aliso Canyon, Los Ang.	27- 3-16	3,070	hd. sh. drlg.
Tide Water A. O., No. 2 Porter, Aliso Canyon, L. A.	27- 3-16	3,198	hd. sh. drlg.
Union Oil, No. 1-27 Orcutt, Aliso Canyon, L. A.	27- 3-16	2,931	sd. sh. drlg.
Mangrum & Page, No. 1 Lintz, Newhall, Los Ang.	4- 3-15	234	sd. sh. drlg.
General Pet., No. 34 Harbor, Wilmington, L. A.	2- 5-13	4,040	flow 1,255 b.d.
General Pet., No. 3 Patten, Wilmington, Los Ang.	2- 5-13	3,618	redrlg. 3,616
General Pet., No. 2 P. E., Wilmington, Los Angeles	2- 5-13	2,371	sd. sh. drlg.
Bond Pet., No. 2 Mutual, Wilmington, Los Angeles	35- 4-13	2,070	sd. sh. drlg.
Dunlap Oil, No. 3-D-U.P., Wilmington, Los Angeles	3- 5-13	2,285	sd. sh. drlg.
F. A. Pet., No. 1 Franco, Wilmington, Los Angeles	29- 4-13	3,725	pump 160 b.d.
Haines, A., No. 1 Harbor, Wilmington, Los Angeles	35- 4-13	2,796	sd. sh. drlg.
Richfield Oil, No. 22 P. D., Wilmington, Los Angeles	2- 5-13	2,715	O.S. drlg.
Royalty Ser., No. 8-A Nelson, Wilmington, L. A.	4- 5-13	5,665	sd. sh. drlg.
Sonwell Oil, No. 5 Harbor, Wilmington, Los Angeles	2- 5-13	4,016	cleaning out
Signal O. & G., No. 1 Allen, Wilmington, Los Ang.	2- 5-13	2,807	sd. sh. drlg.
Signal O. & G., No. 1-D, L.B.-U.P., Wilmington, L. A.	3- 5-13	3,430	sd. sh. drlg.
Signal O. & G., No. 2-D, L.B.-U.P., Wilmington, L. A.	3- 5-13	2,798	sd. sh. drlg.
Signal O. & G., No. 2 L.B.-P.D., Wilmington, L. A.	2- 5-13	2,250	sd. sh. drlg.
Union Pacific R. R., No. 101, Wilmington, L. A.	34- 4-13	3,005	sd. sh. drlg.
Union Pacific R. R., No. 102, Wilmington, L. A.	34- 4-13	3,160	flow 165 b.d.
Union Pacific R. R., No. 107, Wilmington, L. A.	3- 5-13	3,530	O.S. drlg.
Union Pacific R. R., No. 108, Wilmington, L. A.	4- 5-13	2,660	sd. sh. drlg.
Universal Consd., No. 8 Newport, Wilmington, L. A.	2- 5-13	2,198	sd. sh. drlg.
Westgate Greenland Oil, No. 5-A Wilmington, L. A.	3- 5-13	3,292	sd. sh. drlg.
Grady, R. R., No. 1 Associates, San Pedro, L. A.	23- 5-14	614	cmtd. 415
Ridge Oil, No. 1 Club, Montebello, Los Angeles ..	3- 2-12	2,971	sd. sh. drlg.
St. Helens Pet., No. 30 Monterey, Montebello, L. A.	2- 2-12	7,030	O.S. drlg.
St. Helens Pet., No. 4 Mulholland, Montebello, L. A.	2- 2-12	6,375	O.S. drlg.
Standard Oil, No. 5 Braun, Montebello, Los Angeles	2- 2-12	6,498	sd. sh. drlg.
Standard Oil, No. 2 Kaufman, Montebello, L. A.	2- 2-12	6,665	cleaning out
Standard Oil, No. 2 Harvey, Montebello, Los A.	2- 2-12	6,630	sd. sh. drlg.
Standard Oil, No. 4 Harvey, Montebello, Los A.	2- 2-12	6,673	fishing
Union Oil, No. 3 Wilcox, Montebello, Los Angeles	2- 2-12	6,699	flow 705 b.d.
Union Oil, No. 30 La Merced, Montebello, Los A.	1- 2-12	7,669	O.S. drlg.
Stanley Oil, No. 1 Montebello, Montebello, L. A.	2- 2-12	5,070	sd. sh. drlg.
Texas Co., No. 5 Mulholland, Montebello, Los A.	2- 2-12	6,390	sd. sh. drlg.
Graham & Loftus, No. 1 Coffman, Montebello, L. A.	2- 2-12	2,996	sd. sh. drlg.
Vulcan Oil, No. 1 Calkins, Montebello, Los Angeles	11- 2-12	2,780	sd. sh. drlg.
Herley-Kelly, Inc., No. 2 Burke, Montebello, L. A.	2- 2-12	7,230	O.S. drlg.
Wood-Callahan Oil, No. 1 Harris, Montebello, L. A.	2- 2-12	3,293	sd. sh. drlg.
Bush Oil, No. 1 Olds, Montebello, Los Angeles ..	3- 2-12	2,910	sd. sh. drlg.
Texas Co., No. 1-13-A Smith, Anaheim, Orange ..	8- 4-10	8,250	fish D.P.
Brea Canyon Oil, No. 49 Brea, Brea Canyon, Orange	2- 3-10	4,891	cleaning out
Battersby, J. M., No. 1 Associates, Carmenita, Orge.	21- 3-11	8,992	sd. sh. drlg.
Standard Oil, No. 67 Emery, West Coyote, Orange	24- 3-11	....	rigging up
Standard Oil, No. 68 Emery, West Coyote, Orange	24- 3-11	3,199	sd. sh. drlg.
Southwest Expl., No. 9 State, Huntington B., Orange	4- 6-11	3,950	O.S. drlg.
Southwest Expl., No. 10 State, Huntington B., Orange	4- 6-11	3,594	sd. sh. drlg.
Dragon Oil, No. 1 Jauman, Huntington B., Orange	36- 5-11	4,625	recmtd. 4,557
Texas Co., No. 10 Brown, Huntington B., Orange	11- 6-11	3,784	P.B. 3,470
Wilshire Oil, No. 2 H. B., Huntington B., Orange	10- 6-11	5,380	sd. sh. drlg.
Wilshire Oil, No. 15 H. B., Huntington B., Orange	10- 6-11	5,403	pump 415 b.d.
Patos Drlg., No. 1 Graham, Sunset Beach, Orange	21- 5-11	5,429	idle

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Moore, E. H., No. 11 Sugar, Santa Maria Val., S. B.	19-10-34	4,387	sd. sh. drlg.
Moore, E. H., No. 12 Sugar, Santa Maria Val., S. B.	19-01-34	3,280	sd. sh. drlg.
Getty, G. F., No. 8 Vicente, Santa Maria Val., S. B.	27-10-34	4,502	sd. sh. drlg.
Gerard & Thompson, No. 1-B, Santa M. Val., S. B.	27-10-34	2,454	sd. sh. drlg.
Richfield Oil, No. 1 Tinaquaic, Foxen Can., S. B.	36- 9-32	4,671	sd. sh. drlg.
Barnsdall Oil, No. 5 Magenheimer, Gato Ridge, S. B.	9- 8-32	4,385	bailing
General Pet., No. 1 Chamberlin, Los Olivos, S. B.	12- 7-31	1,186	sd. sh. drlg.
United West. Oil, No. 1 Los Olivos, Santa Barbara	16- 7-30	3,450	hd. sd. drlg.
Litho Oil, No. 1 R. I. E., Capitan, Santa Barbara .	5- 4-30	1,270	sd. sh. drlg.
West. Oil Roy., No. 1 Bryce, Carpinteria, Santa B.	29- 4-25	1,750	cleaning out
Garvin & Seaman, No. 1 Gauthier, Sum'erland, S. B.	22- 4-26	1,496	reaming
Merchants Pet., No. 8 Hillside, Sespe, Ventura ..	1- 4-20	1,715	cleaning out
Ivers, H. A., No. 14 Kentuck, Sespe, Ventura	1- 4-20	1,050	sd. sh. drlg.
Section 20 Oil, No. 21, Sespe, Ventura	20- 5-19	2,540	reaming
Shomy Oil, No. 1 Hill, Bardsdale, Ventura	32- 4-19	122	idle
El Rancho Oil, No. 2 Elkins, Shiells Canyon, Vent.	9- 3-19	3,158	pump 142 b.d.
Continental Oil, No. 10 Grubb, San Miguelito, Vent.	24- 3-24	7,035	sd. sh. drlg.
C. C. M. Oil, No. 25-B Hobson, Rincon, Ventura ..	17- 3-24	2,154	sd. sh. drlg.
Rincon Dev., No. 4 State Permit, Rincon, Ventura	7- 3-24	4,150	redrlg. 1,142
Tide Water A. O., No. 40 V.L.W., Ventura A., Vent.	25- 3-23	8,192	sd. sh. drlg.
Tide Water A. O., No. 14 McGonigle, Ventura A., V.	23- 3-23	5,897	sd. sh. drlg.
Tide Water A. O., No. 77 Lloyd, Ventura A., Vent.	27- 3-23	7,280	sd. sh. drlg.
Tide Water A. O., No. 123 Lloyd, Ventura A., Vent.	27- 3-23	5,996	sd. sh. drlg.
Tide Water A. O., No. 124 Lloyd, Ventura A., Vent.	23- 3-23	2,090	sd. sh. drlg.
Tide Water A. O., No. 134 Lloyd, Ventura A., Vent.	27- 3-23	8,339	recmtd. 8,050
Tide Water A. O., No. 8 Hartman, Vent. A., Vent.	22- 3-23	5,773	sd. sh. drlg.
Shell Oil, No. 98 Taylor, Ventura Ave., Ventura ..	21- 3-23	5,326	fish D.P.
Shell Oil, No. 33 Edison, Ventura Ave., Ventura ..	28- 3-23	5,129	redrlg. 4,190
Brit. Amer. Oil, No. 7 Bolsa, Ventura Ave., Ventura	22- 3-23	7,262	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd. cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill stem test.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., owell drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing)
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C., or W.O.C.S., waiting on cement to set.
W.O.O., waiting for orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Alliance Pet., No. 3 Hisey, Ventura Ave., Ventura	21- 3-23	5,561	sd. sh. drlg.
Lloyd Corp., No. 2 Dabney, Ventura Ave., Ventura	23- 3-23	8,498	sd. sh. drlg.
Cal. Expl., No. 2 Occidental, Lost Hills, Kern	24-26-20	5,604	cmtd. 5,604
Belridge Oil, No. 35-26-A, North Belridge, Kern	35-27-20	8,590	sd. sh. drlg.
Belridge Oil, No. 26-25, North Belridge, Kern	26-27-20	8,500	completing
Belridge Oil, No. 26-39, North Belridge, Kern	26-27-20	6,086	cmtd. 5,875
Belridge Oil, No. 28-2, North Belridge, Kern	28-27-20	8,588	flow 910 b.d.
Tide Water A. O., No. 23-3, North Belridge, Kern	22-27-20	7,182	fish D.P.
Richfield Oil, No. 3 Belridge, North Belridge, Kern	22-27-20	7,161	br. sh. drlg.
Amerada Pet., No. 6 Beer, Blackwells Corner, Kern	21-26-19	4,397	sd. sh. drlg.
Herzog, R. D., No. 1 Den, Devil's Den, Kern	27-25-18	620	sd. sh. drlg.
Standard Oil, No. 1 M. & L., Delano gas field, Kern	3-25-23	2,587	sd. sh. drlg.
Dilmar Oil, No. 3 Quinn, Jasmin, Kern	15-25-27	1,350	sd. sh. drlg.
Combs Bros., No. 1 Kern, Kern River, Kern	28-28-28	466	sd. sh. drlg.
D. B. K. Co. No. 1 Kern, Kern River, Kern	34-28-28	340	pump 5 b.d.
Helm & Smith, No. 12 Kern, Kern River, Kern	34-28-28	670	pump 6 b.d.
Triad Oil, No. 1 A. H. S., Kern River, Kern	19-28-28	1,199	cleaning out
Shell Oil, No. 1 Glide, West Mount Poso, Kern	29-27-28	2,504	sd. sh. drlg.
Richfield Oil, No. 1 Union, Union Avenue, Kern	5-30-28	10,427	dry; abd.
O'Reily, F., No. 1 Berree, Edison, Kern	5-30-29	4,156	O.S. drlg.
Oils., Inc., No. 1 Cauley, Edison, Kern	16-30-29	4,197	cleaning out
Superior Oil, No. 1 Jewett, Arvin, Kern	16-31-29	....	rigging up
Texas Co., No. 35-1, KCL, Fruitvale, Kern	35-28-26	7,940	cleaning out
Pacific Southwest Oil, No. 1 Dillon, Fruitvale, Kern	27-29-27	3,697	poor O.S.
Continental Oil, No. 4-A, KCL, Wasco, Kern	8-27-24	13,090	hd. sh. drlg.
Standard Oil, No. 2 Mushrush, Wasco, Kern	7-27-24	12,670	hd. sh. drlg.
Standard Oil, No. 8-2-B, KCL, Wasco, Kern	17-27-24	10,298	hd. sh. drlg.
Union Oil, No. 36-1, KCL, Shafter, Kern	36-27-24	3,194	sd. sh. drlg.
Cal. Expl., No. 1 Dougherty-Salisbury, B'nw'w, Krn.	7-29-24	11,611	O.S. drlg.
General Pet., No. 3 Van Ness, Rio Bravo, Kern	2-29-25	11,526	O.S. drlg.
General Pet., No. 1 Caldwell, Rio Bravo, Kern	35-28-25	10,280	sd. sh. drlg.
Superior Oil, No. 1 Moodie, Rio Bravo, Kern	26-28-25	2,316	sd. sh. drlg.
Shell Oil, No. 23-2-A, KCL, Rosedale, Kern	2-29-26	8,494	sd. sh. drlg.
Standard Oil, No. 2 Fleishauer, Greeley, Kern	20-29-26	11,900	P.B. 11,575
Standard Oil, No. 11-16, KCL, Greeley, Kern	20-29-26	10,440	hd. sd. drlg.
Standard Oil, No. 11-17, KCL, Greeley, Kern	18-29-26	9,580	gr. sh. drlg.
Standard Oil, No. 12-6, KCL, Greeley, Kern	30-29-26	9,050	hd. sh. drlg.
Standard Oil, No. 1 Elrich, Greeley, Kern	20-29-26	12,540	br. sh. drlg.
Superior Oil, No. 12, KCL, Greeley, Kern	3-30-26	13,000	gr. sd. drlg.
Shell Oil, No. 81-25-A, KCL, Ten Section, Kern	25-30-25	7,298	sd. sh. drlg.
Shell Oil, No. 23-14-A, KCL, Canal, Kern	14-30-25	7,196	sd. sh. drlg.
Shell Oil, No. 87-4-B, KCL, Canal, Kern	4-30-25	12,160	sd. sh. drlg.
Richfield Oil, No. 52-32-A, KCL, Tupman, Kern	32-30-25	8,098	br. sh. drlg.
Union Oil, No. 1-11, KCL, Coles Levee, Kern	11-31-25	9,598	sd. sh. drlg.
Standard Oil, No. 20-1, KCL, Coles Levee, Kern	9-31-25	8,360	sd. sh. drlg.
Ohio Oil, No. 2-F, KCL, Coles Levee, Kern	10-31-25	9,495	O.S. drlg.
Premier Oil, No. 1 Padran, Midway-Sunset, Kern	25-32-23	1,597	sd. sh. drlg.
Honolulu Oil, No. 5-A Vista, Midway-Sunset, Kern	14-32-24	3,024	cleaning out
Hoyt, Otis, No. 10 Sunset, Midway-Sunset, Kern	7-11-23	3,078	hd. sh. drlg.
Fried, Julius, No. 1 Fried, Midway-Sunset, Kern	34-32-24	5,035	recmtd. 4,400
National Oil, No. 32 Midway, Midway-Sunset, Kern	35-32-23	1,660	br. sh. drlg.
Texas Co., No. 33 Sunset, Midway-Sunset, Kern	32-32-24	3,270	sd. sh. drlg.
Standard Oil, No. 7-29 Western, McKittrick, Kern	7-30-22	2,298	O.S. drlg.
Westco Pet., No. 1 West, McKittrick, Kern	34-30-22	6,170	sd. sh. drlg.
Tide Water A. O., No. 2 S. P., Tejon Ranch, Kern	15-11-19	7,326	cmtd. 7,020
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	8,797	gr. sd. drlg.
Progressive Oil, No. 3, East Coalinga, Fresno	20-19-15	824	idle
Foreign Oil, No. 6 Annex, West Coalinga, Fresno	6-21-15	2,488	sd. sh. drlg.
Kolinga Refg., No. 2 Hill, West Coalinga, Fresno	14-20-14	1,076	idle
Tyler & Cornwell, No. 4 Tyler, W. Coalinga, Fresno	14-20-14	210	sd. sh. drlg.
Ramsey, W. E., No. 2 Fearon, W. Coalinga, Fresno	18-20-15	4,835	will deepen
Jarvis, L. F., No. 2 Leo, West Coalinga, Fresno	14-20-14	788	idle
Amerada Pet., No. 7-17 S.P.L., N. Coalinga, Fresno	17-19-16	7,018	sd. sh. drlg.
Petseahon, No. 31-7-F, Southeast Coalinga, Fresno	7-20-16	5,528	sd. sh. drlg.
Petseahon, No. 35-7-F, Southeast Coalinga, Fresno	7-20-16	6,799	cmtd. 6,779
Petseahon, No. 22-18-F, Southeast Coalinga, Fresno	18-20-16	6,397	sd. sh. drlg.
Texas Co., No. 1 fee, Southeast Coalinga, Fresno	6-20-16	5,973	sd. sh. drlg.
Standard Oil, No. 71-13-C fee, SE Coalinga, Fresno	13-20-15	6,009	sd. sh. drlg.
Standard Oil, No. 73-13-C fee, SE Coalinga, Fresno	13-20-15	5,161	sd. sh. drlg.
Superior Oil, No. 3 fee, SE Coalinga, Fresno	7-20-16	7,392	br. sh. drlg.
Superior Oil, No. 4 fee, SE Coalinga, Fresno	7-20-16	7,185	br. sh. drlg.
K. N. D. A., No. 54-24-H, Kettleman North, Fresno	24-21-16	9,980	sd. sh. drlg.
K. N. D. A., No. 6-16-Q, Kettleman North, Kings	16-22-18	8,185	flow 4,570 b.d.
K. N. D. A., No. 47-16-Q, Kettleman North, Kings	16-22-18	6,280	br. sh. drlg.
K. N. D. A., No. 36-18-Q, Kettleman North, Kings	18-22-18	7,239	br. sh. drlg.
K. N. D. A., No. 6-22-Q, Kettleman North, Kings	22-22-18	3,994	sd. sh. drlg.
K. N. D. A., No. 78-22-Q, Kettleman North, Kings	22-22-18	7,960	swabbing
Standard Oil, No. 56-1-P, Kettleman North, Kings	1-22-17	8,040	gr. sd. drlg.
Standard Oil, No. 76-7-Q, Kettleman North, Kings	7-22-18	7,473	gr. sd. drlg.
Standard Oil, No. 74-17-Q, Kettleman North, Kings	17-22-18	5,481	sd. sh. drlg.
Standard Oil, No. 81-19-Q, Kettleman North, Kings	19-22-18	5,496	sd. sh. drlg.
Standard Oil, No. 41-21-Q, Kettleman North, Kings	21-22-18	2,972	sd. sh. drlg.
Standard Oil, No. 83-21-Q, Kettleman North, Kings	21-22-18	4,753	sd. sh. drlg.
Cal. Pet. Prod., No. 1 Irons, Cuyama, S. Luis Obispo	19-10-24	1,830	redrlg. 1,770
Newton, S. M., No. 1 Stafford, Panorama, S. L. Obis.	18-31-21	998	sd. sh. drlg.
Epco, Inc., No. 1 Ajax, Union, San Luis Obispo	27-26-13	4,660	br. sh. drlg.
Texas Co., No. 1 Arroyo Seco, Greenfield, Monterey	11-19- 5	1,461	sd. sh. drlg.
Amalgamated O. & G., No. 5 Konda, Richgrove, Tul.	23-24-27	1,912	dry; abd.

KANSAS

Week Ending March 11 (Descriptions are East unless marked otherwise)

Barber County

Barbara Oil Co. No. 1 Wilson, C SE Sec. 17-33-13. K.C. 4,097 ft.; Vla. 4,950 ft.; drlg. 5,025 ft.

Olson Oil Co. No. 1 Coffman, C NW NE Sec. 25-31-12w. Vla. 4,512 ft.; cd. 4,511-25 ft.; S.O. 4,522-24 ft.

Barton County

Central Pet. and Vernon O. & G. No. 1 Miller, SE SW SE Sec. 17-16-13w. Drlg. 2,525 ft.

Gulf Oil No. 1 Louis, C N½ NW SW Sec. 2-20-12w. Arb. 3,347 ft.; S.S.O. 3,373 ft.; T.D. 3,375 ft.; acdz.; 75 ft. O.I.H.

Long & Johnson No. 1 Eveleigh, SW SW NE Sec. 3-18-14w. Lans. 3,100 ft.; Arb. 3,338 ft.; T.D. 3,367 ft.; P. 66 B. O. in 8 hrs.; pot, 197 B.O.

Paul Martin No. 1-A Feltes, NW SW SE Sec. 8-16-12w. T.D. 2,900 ft.; est. 12,000,000 cu. ft. gas.

I. W. Murfin No. 1 Birzer, NE SW Sec. 21-19-11w. Pay 3,130 ft. and 3,152-54 ft.; 1,200 ft. O.I.H. in 8 hrs.

Butler County

Bowland & McCoy No. 1 Frankson, SE SW Sec. 2-29-6. S.D. 165 ft.

Hav. Hall & Table-Mesa Oil Co. No. 1 Ferrell, SW NW NE Sec. 28-28-8. Set 7-in. 2,641 ft.

Cowley County

Ben Gralapp et al No. 1-A Clark, NW NW NE Sec. 11-31-3e. T.D. 3,248 ft.; fsg. 3,200 ft.

Mead Bros. No. 1 Julian, NE SE NW Sec. 16-33-3. Pay 3,226-36 ft., T.D.; S.D.

Phillips Pet. Co. No. 1 Bernard, SE SE NE Sec. 19-33-6. Drlg. 3,436 ft.

Dickinson County

Franks et al No. 1 Huffman, NW NW SW Sec. 11-13-1. Drlg. 2,060 ft.

Ellis County

Bridgeport No. 1 Froelich, CWL SW Sec. 34-12-16w. Arb. 3,517 ft.; T.D. 3,540 ft.; D.&A.

Darby Pet. No. 1 Peavey, NW NW NE Sec. 24-11-18w. T.D. 3,456 ft.; swb. 110 B.O. in 15 hrs.

Graham County

Continental Oil Co. No. 1 Drumm Comm. Co., SE SE NE Sec. 16-9-21w. Lans. 3,390 ft.; Arb. 3,679-94 ft.; T.D. 3,702 ft.; pmp. 149 B.O. in 8½ hrs.; to acdz.

Continental Oil Co. No. 1 Putnam Inv. Co., CWL SW Sec. 23-9-21w. Set 8-in. 7,518 ft.; (cor.).

Leavenworth County

John Hardaway No. 1 Scheller, SW SE SW Sec. 30-10-22. S.D. 345 ft.

McPherson County

Marylyn Oil No. 1 Dixon, NW NE NW Sec. 7-19-2w. T.D. 3,018 ft.; acd.; P.& F. 36 B.O. in 24 hrs.

Phillips Pet. Co. No. 1 Esau, CEL W½ NE Sec. 7-21-4w. Drlg. 3,568 ft.

Sinclair Prairie No. 1 Martins, CWL SW Sec. 20-21-3w. Drlg. 2,565 ft.

Marion County

Johnson et al No. 1-A Miltz, SW SW SW Sec. 24-17-4. T.D. 2,485 ft.; shot and C.O.; H.F.W.

Mead County

Pacific Midwest Oil No. 1 Rexford, NE SE SW Sec. 8-30-29w. S.D. 1,435 ft.

Osage County

J. M. Edwards No. 1 Detrick (O.W.D.D.), C NW SE Sec. 21-14-15. O.T.D. 1,200 ft.; S.D. 1,200 ft.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW Sec. 18-10-2w. Miss. 2,835 ft.; H.F.W. 3,302-10 ft.; S.D. for csg. 3,480 ft.

Pratt County

Champlin Ref. Co. No. 1 Elliott, SW NE Sec. 26-27-14w. Fsg. 4,857 ft.

Reno County

Barnsdall Oil Co. No. 1 Krehbiel, NE NE NE Sec. 18-25-5w. Lans. 2,735 ft.; Vla. 3,832 ft.; Simp. 3,863 ft.; Arb. 3,954 ft.; T.D. 4,000 ft.; D.&A.

Rice County

McPherson Drlg. Co. No. 1 Cramm, SE SE SW Sec. 15-19-9w. Drlg.

Spurrier & Bruce No. 1 Cary, NE NW NW Sec. 30-18-8w. O.W.D.D.; O.T.D. 1,530 ft.; S.D. 1,680 ft.

Rooks County

Broadview Oil No. 1 Beardsmore, NW SE SW Sec. 2-9-16w. Drlg. 535 ft.

Phillips Pet. Co. No. 1 Tanzey, C NW SW Sec. 25-8-18w. Arb. 3,418-3,423 ft.; T.D. 3,424 ft.; acd. and swb. 21 B.F.

Russell County

Central Pet. No. 1 Karst, SE NW NE Sec. 21-15-13w. Drlg. 2,360 ft.

Phil-Han No. 1 Weimeister, SW Sec. 13-14-13w. Top pay 2,655 ft.; perf. and acd. and swb. ½ B.O.P.H.; to P.B

Skelly Oil Co. No. 1 Carter, CSL SW NE Sec. 33-14-13w. Drlg. 1,727 ft.

Saline County

Central States Oil Co. No. 1 Crawford, NW SW NE Sec. 26-13-3w. **Drlg. 1,100 ft.**

Sedgwick County

Century Pet. Co. No. 1 Wilke, SW SE SW Sec. 1-29-2. Drlg. 800 ft.

Frank Hudson et al No. 1 Fulton, NE SE Sec. 35-28-1e. T.D. 2,356 ft.; T.A.

Shawnee County

W. M. McKnab No. 1 Fritz, SW SE NW Sec. 4-12-14. Drlg. 1,900 ft.

Stafford County

Continental Oil No. 1 Russell, SW SW NE Sec. 13-25-13w. Arb. 4,024 ft.; 3,975 ft. O.I.H.; S.D. for stge.; T.D. 4,072 ft.

Stanolind O. & G. Co. No. 1 Curtis, SE cor. Sec. 31-21-12w. Viola 3,544 ft.; Arb. 3,638 ft.; R.U.S.T. 3,640 ft.

Virginia Drlg. Co. No. 1 Schlockter-meyer, SE NW Sec. 7-21-11w. Arb. 3,347 ft.; S.S.O. 3,469 ft.; 1,800 ft. F.I. H.; est. 1,000 ft. O.I.H.; to swb.

Wabaunsee County

Scheu & Tague et al No. 1 Ave, NW SW NW Sec. 10-12-8. Drlg. 605 ft.

Woodson County

Roby et al No. 1 Meairs, SW SW NW Sec. 21-25-14. S.D. 400 ft.

M. J. Trott No. 1 Abbott, NW NE NE Sec. 21-25-14e. Drlg. 1,325 ft.

NEBRASKA

Pawnee County

Blazer & McClure et al No. 1 Allen, NW NE SW Sec. 16-1n-10e. Bart. sd. 40 ft.; Miss. L. 149 ft.; Arb. 789 ft.; T.D. 801 ft.; lost hole and shot off csg.; P.B. to 450 ft.; 100 gal. acd. and 1,000 gal. acd.; C.O.

Richardson County

H. C. Stephens and E. Uhri No. 1 Harlow, C SE NE Sec. 32-1n-13e. O.W.D. D.; S.D. 780 ft.

Hitchcock County

C. L. Price No. 1 Carter, SE NE SW Sec. 35-2n-32w. Drlg 3,150 ft.

OKLAHOMA

Week Ending March 11

NORTHERN OKLAHOMA

Atoka County

Giblett No. 1 Rich, SE SE SW Sec. 2-1-12. W.O.C. 704 ft.

Caddo County

Texas Co. No. 1 Smith, C NE NW Sec. 2-5-12w. T.D. 2,556 ft.; S.D.O.

Cleveland County

Harper, Turner et al No. 1 Taylor, SE NE NW Sec. 23-8-2w. Woodford 7,090 ft.; Vla. 7,620 ft.; Simp. 7,680 ft.; dolo. 7,750 ft.; T.D. 7,828 ft.; S.D.; reprs.

Nels-Burrton No. 1 Hirsch, NW NW NE Sec. 17-9-2w. O.W.P.B.; O.T.D. 7,692 ft.; T.D. 7,695 ft.; pmp. 280 B.O. and est. 50 B.W. in 24 hrs.

Comanche County

Ker-Lyn Oil Co. No. 1 Laging, C NE SW Sec. 30-4-9w. Drlg. 4,660 ft.

Mid Night Oil No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; T.D. 773 ft.; set 5-in. at 521 ft.

Ed Parsons No. 1 Stephens, C NW SW Sec. 29-4-9w. Drlg. 256 ft.

Garfield County

Champlin Ref. Co. No. 1 Allen, SE SE SE Sec. 26-24-8w. Drlg. 6,708 ft.

Hughes Drlg. Co. No. 1 Meisner, C NE NW Sec. 10-20-4w. Vla. 5,705 ft.; Wlx. 5,823-65 ft.; T.D. 5,894 ft.; W.O.C.

Garvin County

H. R. Hollenbach et al No. 1 Butterly, NE NE SE Sec. 22-1n-1e. 3,218,000 cu. ft. gas; drlg. 3,205 ft.; S.D.; repairs.

Ker-Lyn Oil Co. No. 1 Butterly, NE NE SE Sec. 22-1-1. O.W.D.D.; O.T.D. 3,205 ft.; to D.D.

Pure Oil No. 1 Derdeyn, NE NW SE Sec. 19-3-1. Drlg. 2,800 ft.

Grady County

Carter Oil Co. et al No. 1 Smith C-58, C SE SW Sec. 26-5-8w. S.S.O. 5,329-58 ft.; S.O. 5,433 ft.; cd. 5,964-76 ft.; rec. sh.; cd. 6,351-76 ft.; rec. hd. sd.; T.D. 6,613 ft.; set 9-in. csg. 6,602 ft.; W. O.C.

Ed Parsons No. 1 McKenney, SE SE SW Sec. 30-3-8w. Drlg. 253 ft.

Hughes County

Skelton et al No. 1 Gilmore, C N½ NE SE Sec. 7-5-9. Drlg. 552 ft.

Kay County

Cooper Drlg. Co. No. 1 Caughlin, SE NE SW Sec. 30-25-1. Drlg. 135 ft.

Crawford No. 1 Boehl, SE SE NW Sec. 34-27-2w. T.D. 1,040 ft.; S.D.

C. C. Nye No. 1 Wolfenbarger, SW NW SW Sec. 16-27-4. T.D. 3,201 ft., sd.

Kaw Oil Co. No. 1 Wolfenbarger, NW NW SE Sec. 9-27-4. T.D. 60 ft.; S.D.; rprs.

Kingfisher County

K. A. Ellison No. 1 Baker, NE NE SE Sec. 20-19-5w. Drlg. 2,028 ft.

Ace Gutowsky No. 1 Lankford, NE NE SE Sec. 34-17-6w. Oswg. 6,630 ft.; T.D. 7,082 ft.; D.P. stk.

Kiowa County

C. J. Hagerling No. 1 Kimray, SW SW NW Sec. 36-5-18w. T.D. 500 ft.; recvd. bit and S.D.

Wichita Oil, Inc., No. 1 Mace, SW SW SW Sec. 11-5-15w. Drlg. 120 ft.

McIntosh County

Scruggs et al No. 1 Lanning, SE SW SW Sec. 19-12-15. Spd.

Murray County

M. A. Saunders No. 1 Vanderslice, C SW SW Sec. 25-2-2. Drlg. 925 ft.

Muskogee County

Heydrick No. 1 Paschall, NE SE NW Sec. 22-13-19. S.D. 1,446 ft.

Petroleum No. 1 Scott, SE SW SW Sec. 14-13-19. Mch.

Okfuskee County

Carter & Hight No. 1 Rogers, SW SW SW Sec. 6-13-8. T.D. 2,850 ft.; P.B. 2,498 ft.; shot and swb. 11 B.O. and 25 B.W. in 16 hrs.

I. T. I. O. No. 1 Palmer, NE SE NW Sec. 5-10-9. Drlg. 1,455 ft.

Oklahoma County

E M. Eldridge No. 1 White, C NE NE Sec. 30-11-1. Drlg. 5,580 ft.
O. A. Walters No. 1 Olmstead, C E½ SE NW Sec. 12-14-3w. W.O.C. 294 ft.

Okmulgee County

Jim Wise Drlg. Co. No. 1 Morrow, SW NW NE Sec. 16-15-13. 3,000,000 cu. ft. gas 1,930-38 ft.; decreased to 1,000,000 cu. ft. at 1,985 ft.; T.D. 1,985 ft.; S.D

Pawnee County

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. T.D. 1,780 ft.; S.D.

Pittsburg County

Phillips Pet. Co. No. 1 Hubacker, C NW NE Sec. 11-7-15. Drlg. 5,393 ft.

Pontotoc County

Union Dev. Co. No. 1-A Abbott, SW NW NE Sec. 34-3-6. S.D. 4,100 ft.
L. Walker No. 1 King, SW SE NW Sec. 5-4-7. Drlg. 463 ft.

Pottawatomie County

Grimes et al No. 1 Dye, NW NW SE Sec. 2-5-5. Wlx. 3,355 ft.; T.D. 3,379 ft.; to test Hntn. at 2,660 ft.
J. E. Trigg No. 1 Truesdell, SW SW SE Sec. 21-7-5. Drlg. 2,240 ft.
Wood Oil Co. No. 1 Peters, SW SE NW Sec. 28-8-4. Wlx. 3,540 ft.; dolo. 4,365 ft.; p. 40 B.O. and 60 B.W. in 24 hrs.

Sequoyah County

Thompson Brs. No. 1 Ruby, NW NW NE Sec. 30-12-22. T.D. 1,050 ft.; rng. 8-in.

Seminole County

Atlantic Ref. Co. No. 1 Atkinson, NW NW SW Sec. 17-6-6. Misener 3,697 ft.; Viola 3,718 ft.; T.D. 4,023 ft.; P.B. 3,819 ft.; drld. out to 3,839 ft.; acdz. and S. 127 B.O. and 90 B.W. in 15 hrs.
Atlantic Ref. Co. No. 1 Jimmey, SE NW NE Sec. 21-7-6. Loc.
Burke-Greis No. 1 Harjoche, NE NE SW Sec. 19-8-7. Drlg. 2,310 ft.
H. S. Moss No. 1 Leachman, C N½ SE NE Sec. 34-10-6. Woodford 4,252 ft.; Hntn. 4,303 ft.; T.D. 4,630 ft.; F. 1,000 B.O. in 7½ hrs. while rng. tbg.; S.I.
W. C. Wood No. 1 Aldridge, SW NW NE Sec. 5-8-8. T.D. 1,910 ft.; H.F.W.; S. D.O.

Stephens County

Phillips Pet. Co. No. 1 Culbertson, NW NW SE Sec. 4-1-5w. T.D. 5,383 ft.; S.D.; repairs.

Texas County

Republic Nat. Gas Co. No. 1 Dulabohn, C Sec. 21-6n-15ecm. Drlg. 2,365 ft.
Republic Nat. Gas Co. No. 1 Judd, CSL SW Sec. 24-6n-15ecm. T.D. 2,870 ft.; gas 7,100,000 cu. ft.

Washita County

Continental Oil Co. No. 1 Proctor C NW Sec. 28-10-20w. T.D. 10,195 ft.; set csg. 10,172 ft.; W.O.C.
L. B. McWhirter No. 1 fee, NW SW SW Sec. 34-8-19w. T.D. 2,190 ft.; S.D.

SOUTHERN OKLAHOMA

Carter County

Pure Oil Co. No. 1 Noble, NE SE Sec. 35-3s-1e. Woodford 4,289 ft.; Hunton 4,638 ft.; Vla. 5,014 ft.; drlg. Simp. 5,860 ft.

Choctaw County

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. S.D. 1,406 ft.

Cotton County

Henry Groce No. 6 Collins, NW NW NE Sec. 18-4s-10w. T.D. 1,241 ft.; rmg.

Jefferson County

H. W. Weir No. 1 Carmichael, NE NE SW Sec. 23-7s-7w. W.O.C. 102 ft.

Marshall County

Hughes et al No. 1 Vittitto, C NE SE Sec. 11-5s-4e. O.W.D.D.; O.T.D. 7,100 ft.; S.D.O.

Murray County

A. G. Carter No. 1 Vensonite, 1,170 ft. W and 150 ft. S. Sec. 34-1s-2e. S.S.O.: T.D. 1,295 ft.; D.P. parted at 900 ft.; drlg. by at 1,025 ft.

Tillman County

Smith No. 2 Hammel, NE NW NW Sec. 6-5s-15w. T.D. 2,420 ft.; C.O. 2,100 ft.

ARKANSAS

Columbia County

Atlantic Ref. Co. No. 1 A. S. Crisp, NW cor. NW NE Sec. 23-17-20. Drlg. sh. 6,270 ft.
Atlantic Ref. Co. No. 1-B Garrett, C NW NW Sec. 24-17-20. Set 16-in. csg. 130 ft.; T. Bknr. 7,233 ft.; T. por. zones 7,305 and 7,316 ft.; sat. L. 7,316-7,510 ft.; rmd. to 7,432 ft.; set 5½-in. csg. 7,510 ft.
Hassie Hunt No. 1 Tally, Sec. 14-17-20. 10¾-in. csg. 2,271 ft.; W.O.C.
Normandie Oil Co. No. 1-B L. Garrett, C NE SW Sec. 13-17-20. Set 16-in. csg. 120 ft.; drlg. rd.&gr. sh. 6,150 ft.
Phillips Pet. Co. No. 1 Askew Unit, C NE NW Sec. 4-17-21. M.I. rig.
Alice Sydney Oil Co. No. 1 Crisp, Sec. 23-17-20. 16-in. csg. 127 ft.; T. Bknr. 7,291 ft.; T. Smkvr. L. 7,336 ft.; T. porosity zones 7,362 and 7,382 ft.; 7-in. csg. 7,505 ft.; tstg.
Southwood Oil Co. No. 1 L. A. Grelling, C NE NW Sec. 23-17-20. Set 16-in. csg. 139 ft.; fsg. D.S. 3,790 ft.
Southwood Oil Co., Inc., No. 2 J. O. Hutcheson, C SE SW Sec. 14-17-20. 16-in. csg. 135 ft.; T. Bknr. 7,318 ft.; T. Smkvr. L. 7,352 ft.; por. zones 7,379 and 7,382 ft.; 7-in. 7,506 ft.; tstg.
Standard Oil Co. of La. No. 1 M. Harris, NE cor. NE SW Sec. 15-17-19. 9⅝-in. csg. 2,400 ft.
Tide Water Oil Co. No. 1 Price, C NE SW Sec. 15-18-19. Drlg. 1,861 ft.
Vaughn & Hunt No. 1 Crisp, Sec. 23-17-20. R.U.

Craighead County

Tannark, Inc., No. 1 Ruby M. Martin, 580 ft. NL, 80 ft. EL, Sec. 35-14n-3e. Jnkd. and abd. 1,735 ft., sdy. sh.

Hot Spring County

John H. James No. 1 Sturgess Lbr. Co., SW cor. SW SE Sec. 24-6-18. 10-in. csg. 58 ft.; cd. hd. dense gr. L. 964-78 ft.; T.D. 1,048 ft.; S.O. reported 480-82 ft. and 819-21 ft.; hd. sd.; S.D.; W. O. core bbl.

Lafayette County

Standard Oil Co. of La. No. 5 McKean, SW cor. NW SE Sec. 7-16-22. Set 9⅝-in. csg. 2,047 ft.; drlg. anhy. 3,390 ft.

Little River County

C. & M. Drlg. Co. No. 1 Strawn, SW cor. SE Sec. 20-10-32. Cd. 1,270-80 ft.; sh.& wtr. sd.; reported S.O. 1,365-70 ft.; 1,542-64 ft. sd. and 1,564-74 ft. sdy. L.; S.D.; W.O. 1,574 ft.
Joe G. Strahan et al No. 2 Dierks Lbr. Co., Sec. 21-12-28. S.D. for D.S. 3,797 ft.

Lonoke County

Cabot Drlg. Club, Inc., No. 1 Benson Townsite, Sec. 18-4n-9w. O.W.W.O.; O. T.D. 2,760 ft.; M.I. rig to dpn.
Lonoke-Prairie Dev. Co. No. 1 T. Young, C NW NW Sec. 8-3n-7w. Hole clean; U.R. 8¼-in. csg. 236 ft.; T.D. 300 ft., sd.; S.D.
W. L. Tedford No. 1 Anderson, 8-in. 400 ft.; arng. run 5-in. csg. on pkr. to S.O. wtr. flw.; set 5-in. csg. on pkr. reported 3-ft. sd. 937-40 ft.; bailed dry with S.O.; drld. to 942 ft. and bailed dry; W.O. 942 ft.

Miller County—Rodessa

Berkshire Oil Co. No. 2 Watson, NE SE Sec. 2-20-28. Sat. L. 6,205-35 ft.; set 5½-in. csg. 6,203 ft.; comp.; 22 B.P.H.; 20/64-in. ck.; T.P. 250 lbs.; C.P. 850 lbs.; T.D. 6,235 ft.

Mississippi County

Benedum & Trees Oil Co. No. 1 Mack, 330 ft. SW cor. NW SW Sec. 2-15n-12e. Top Nac. 2,160 ft.; set 7-in. csg. 2,897 ft.; drlg. hd. gr. L. 4,352 ft.

Nevada County

Webb & Franks No. 1 P. T. Grayson, SW cor. NW SE Sec. 4-14-20. Tokio sd.; D.S.T. 2,098-2,102 ft.; 10 min.; rec. 200 ft. oil and mud; open ck.; set 7-in. csg. 2,099 ft.; T.D. 2,102 ft.; drld plug; 250 ft. F.I.H.; comp.; pmpg. 6 B.P.H., 2,102 ft.

Ouachita County

Phillips Pet. Co. No. 1 J. D. Reynolds, 330 ft. SE cor. SE NW Sec. 27-15-15. O.W.W.O.; O.T.D. 4,926 ft.; comp. as disc. well, Snow Hill field; drld. hd. dense ool. L. with salty taste to 4,945 ft. and pmpd. 1,200 bbls. S.W. daily, no S.O.; P.B. 4,780 ft.

Union County—Schuler

Lion Oil Ref. Co. No. 2 Henry, C N SE SE Sec. 12-18-18. Set 16-in. csg. 115 ft.; 10¾-in. csg. 1,920 ft.; drlg. rd. sdy. sh. 6,740 ft.
Lion Oil Ref. Co. No. 1 Murphy Ld. Co., Sec. 13-18-18. 10¾-in. csg. 1,908 ft.

Union County—Other

Hollyfield & McFarlane No. 1 S. Murphy, Sec. 9-16-15. T. Mkns. sd. 2,336-49 ft.; set 9⅝-in. csg. 2,385 ft.; T.D. 2,392 ft.; W.O.S.R.
E. M. Jones No. 3 J. C. Morgan, Sec. 13-18-18. Drlg. 535 ft.
E. M. Jones No. 4 J. C. Morgan, C N½ NE NW Sec. 13-18-18. R.U.
Lion Oil Ref. Co. No. 1 Clay, Sec. 12-18-18. R.U.
Sklar Oil Corp. No. 10 Murphy, SW NE Sec. 9-16-15. Sat. sd. 2,338-61 ft. (Meakin); set 7-in. csg. 2,385 ft.; perf. 2,338-46 ft.; pmpg.; no ga.; 2,385 ft.
Sloan Wells, Tr. No. 4 G. J. Childs, 150 ft. NW cor. NE SW Sec. 8-16-16. O.W. W.O.; O.T.D. 2,656 ft.; fsg. 2,656 ft.
Snuggs Sebersky & Bylick No. 1 J. N. Jerry, NE cor. SE SW Sec. 21-17-14. Cd. S.W. sd. 2,818-21 ft.; S.O. 2,885-90 ft.; D.S.T. 2,881-95 ft.; 15 min.; rec. 250 ft. mud, S.W. and S.O.; cd. sd. 2,993-98 ft. (oil) and 2,998-3,000 ft. (S. W.); S.D.; W.O. 3,000 ft.

White County

G. F. Herlden et al No. 1 M. C. Wells, C SW Sec. 36-9n-8w. M.I. rig.

NORTH MISSISSIPPI

Calhoun County

L. C. Lucas No. 1 E. C. Boland, 400 ft. E and 500 ft. S, NW cor. SW Sec. 9-22n-9e. S.D. 791 ft.

Clarke County

Jeremiah L. Ryan et al No. 1 M. Eddins, 500 ft. SE cor. Sec. 29-2n-14e. S.D. 291 ft.

Hinds County

G. Jefferys No. 1 Gaddis Farms, Inc., NW cor. SE Sec. 26-7n-4w. S.D. 3,448 ft.
Cleve Love et al No. 1 S. F. Johnson, NE cor. Sec. 29-6n-1w. S.D. 5,218 ft., sd.; arng. D.D.; will erect large steel drk.

Madison Parish

Union Prod. Co. No. 1 Anderson, Sec. 12-8n-1w. Drlg. 359 ft.; set 13⅜-in. csg. 800 ft.

Simpson County

Cleve Love No. 1 N. E. Garner, SW cor. SW NE Sec. 1-10n-17w. S.D. 900 ft.
Goodwill O. & G. Co. No. 1 Berry, Sec. 33-2n-4e. S.D. 2,810 ft.

Yalobusha County

Chas. W. Crader et al No. 1 John Bruce James, Sec. 24-11s-6w. S.D. 2,950 ft.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Ark. La. Gas Co. No. 2 Gayoso, 660 ft. SW cor. SE Sec. 14-16-10. T. Tr. Pk. 5,432 ft.; D.S.T. 5,796-5,805 ft. tstd. dry in 26 min.; set 8⅝-in. csg. 6,300 ft.; drlg. sh. 6,540 ft.

Bossier Parish

Premier Inv. Co. No. 1 Commerce Security Corp., SE cor. Sec. 22-19-11. D. &A. 310 ft.
Premier Inv. Co. No. 1 McDade, SE SW NE Sec. 28-19-11. T.D. 2,384 ft.; acd. with 1,000 gal.; csg. seat gave away; hole full S.W.; 5½-in. csg. 2,342 ft.; pmpg. 5 B.O.P.D. and 25 bbls. S.W.; abd. 2,492 ft.
Triangle Drlg. Co. No. 1 Sandridge, C SE SW Sec. 14-17-12. Drlg. sh. 1,605 ft.

Caddo Parish

J. P. Adams et al No. 1 Stallcup, N ½ NW NW Sec. 34-22-16. R.U.
R. E. Allison No. 1 Harman, SW cor. Sec. 34-18-14. R.U.
R. E. Allison No. 1 La. Real Estate Dev. Co., Sec. 4-17-14. Drlg. 465 ft.
Rhoda Armstrong No. 2 Henderson, SW cor. Sec. 27-22-16. Set 5½-in. csg. 2,495 ft.; T.D. 2,507 ft.; comp.; flwg. by hds.; est. 25 B.P.D., 20% S.W.
Beckett & Key No. 1 M. C. Stallcup, SE cor. NE NW Sec. 34-22-16. Set 10-in. 103 ft.; S.D.; W.O.; T.D. 2,500 ft.
Mose Browning and E. D. Holcomb, Jr., No. 1 Henderson, SW cor. Sec. 27-22-16. Oil sd. 2,495-2,504 ft.; 7-in. csg. 2,489 ft.; set 2 jts. 5½-in. perf. lnr. and 2-in. tbg. with pkr. at 2,467 ft.; set 158 ft. 5½-in. csg. on bttm.; T.D. 2,504 ft.
J. M. Buckler No. 2 Stiles, NE cor. Sec. 17-21-16. 6-in. csg. 1,048 ft.; T.D. 1,051 ft.; tstd. S.W.; W.O.
F. W. Burford No. 3 Brown, NE cor. Sec. 5-23-15. Drlg. sh.&L. 3,904 ft.
Burnham Drlg. Co. No. 1 Bell, SW cor. NW Sec. 34-22-16. D.S.T. 2,435-55 ft.; tstd. 150 ft. oil and 30 ft. mud in 15 min.; set 5½-in. csg. 2,450 ft.; W.O.C.
Carney et al No. 3 Hart, SE NW Sec. 21-21-16. Set 8-in. csg. 1,563 ft.; tstd. S.O.; acdzd. with 3,000 gal.; tstd. dry; drld. to 1,930 ft.; tstd. S.W. and will P.B.
Paul Cooper et al No. 2 Stiles, NE cor. SW Sec. 28-21-16. Cg. 2,377 ft.
Cryer & Davis No. 1 Crystal fee, S and W, C Sec. 25-21-16. 10-in. csg. 70 ft.; oil sd. 2,274-76 ft.; T.D. 2,276 ft.; W.O. S.R.; 1,700 ft. O.I.H.; 6⅝-in. csg. 2,259 ft.; comp.; pmpg. 25 B.P.D., 2,276 ft.
Leon Dunn No. 1 Nelson, NE cor. Sec. 26-18-14. Spd.
W. C. Feazel No. 1 Hunter, SW cor. Sec. 23-18-14. Set csg. 1,516 ft.; W.O.C.
Harry Fotiades No. 1 Tomlinson, C NE NW Sec. 35-18-14. Set 10¾-in. csg. 1,500 ft.; drlg. sh.&L. 5,065 ft.
Don George No. 1 Henderson, SW cor. Sec. 27-22-16. Abd.; will not drill.
Gerhig Co. No. 1 Land, NW SE Sec. 36-21-16. Drlg. sh. 1,750 ft.
Ralph Gilster No. 1 DeSoto Corp., NW cor. Sec. 26-18-14. R.U.
H. C. Prod. Co. No. 1 Kinnebrew & Ratcliff, NE cor. Sec. 5-19-16. D.S.T. 2,253 ft.; S.W.; 7-in. csg. 1,497 ft.; P.B. 1,680 ft.; O.T.D. 2,253 ft.; acdzd. with 2,000 gal.; O.&S.W. in hole; tstg. 1,680 ft.
Harry Hanbury No. 1 Slack et al NW cor. Sec. 26-18-14. Set 9⅝-in. csg. 1,525 ft.; W.O.C.
A. R. Hancock No. 4 Helpman, Sec. 16-21-16. Set 7-in. csg. 998 ft.; W.O.S.R. 1,017 ft.
A. R. Hancock No. 6 Helpman, NW SE Sec. 16-21-16. Set 6⅝-in. csg. 996 ft.; W.O.S.R. 1,018 ft.
Hurricane Pet. Corp. No. 1-C Chandler, C SW SE Sec. 34-18-14. Jnkd. at 1,256 ft.; skd. over and began second hole; D.S.T. 5,616-25 ft.; tstd. 9 stands mud cut with oil in 7 min.; T. sat. L. 5,617 ft.; set 5½-in. csg. 5,116 ft.
Hurricane Pet. Corp. No. 1 Harman, 660 ft. N and W. C Sec. 34-18-14. Set surface csg.; W.O.C.
C. M. Jones No. 1 Henderson, SW cor. Sec. 27-22-16. Sdy. sh. 2,496-99 ft.; S. S.O.; S.D.; W.O.; T.D. 2,500 ft.
Wm. C. Leisk No. 1 Sinclair, NW SE Sec. 26-18-14. 13⅜-in. csg. 294 ft.; sat. L. 5,552-58 ft. and 5,560-63 ft.; set 5½-in. csg. at T.D. 5,565 ft.
Ben Levy No. 1 Crystal fee, SW cor. Sec. 25-21-16. Set 6-in. csg. 1,350 ft.; cg. 2,230 ft.
C. D. Loe No. 1 Meyer, SE cor. Sec. 33-18-14. T. Pettit 5,592 ft.; O.T.D. 5,631 ft.; swbd. O.&S.W.; resqzd. all perf. and set plug 5,605 ft.; tstd. dry; reperf. 5,592-5,602 ft. and ripped csg. 5,592-5,602 ft.; reacd. with 500 gal. and tstd. S.O.&S.W.; P.B. 5,200 ft.; W.O.
Oblinger & Ritter No. 1 Boisseau, SE cor. Sec. 34-21-16. R.U. and S.D.
S. H. Riggs and C. C. Gilger No. 1 W. D. Browning, NW cor. NE SW Sec. 27-22-16. R.U. and S.D.
J. O. Whittington No. 1 Grayson, C SE SE Sec. 30-19-15. Set 9⅝-in. csg. 2,200 ft.; T. Massive anhy. 4,434 ft.; base 4,695 ft.; T. Pett. L. 5,635 ft.; cd. 5,694-5,710 ft.; rec. 5 ft. ool. L.; odor gas; T.D. 6,040 ft.; D.&A.
R. W. Williams No. 1 Burton, SE cor. SW Sec. 36-21-16. Set 5½-in. csg. 2,247 ft.; T.D. 2,268 ft.

Caldwell Parish

Critchett & Woods (formerly E. T. Oakes) No. 1 Kyles, NE cor. SW NE Sec. 18-11-3e. Cg. sdy. sh. 1,215 ft.
G. W. Ziegen et al No. 15 La. Cen. Lbr. Co., NW cor. Sec. 32-15-2e. D.&A. 1,653 ft.

Claiborne Parish

E. T. Oakes et al No. 2 Kilgore, C NW SE Sec. 28-21-5. Hd. to slightly por. L. 5,294-5,303 ft.; 5½-in. csg. 5,287 ft.; acdzd. with 5,000 gal.; swbg.; 2,000 ft. O.I.H. 5,324 ft.; W.O.S.R.

De Soto Parish

S. S. Alexander No. 1-A Stoll, Sec. 5-12-16. Set 7-in. csg. 2,705 ft.; acd. with 3,000 gal. and tstd. est. 2,000,000 cu.ft. gas; 400 lbs.; D.S.T. 2,984-3,046 ft.; tstg 165 ft. mud cut with oil, 35 min.; set short string 5-in. csg. on bttm.; T.D. 3,145 ft.; perf. 3,000-44 ft.; 2,500 ft.; flwd. 3 days, est. 10 B.P.D. and went dead; reperf. csg. 2,995-3,045 ft. and tstg. 3,064 ft.; O.T.D. 3,145 ft.; treated with 500 gal. acd. and swbg.; 300 ft. O.I.H.

Grant Parish

J. E. Granstaff No. 1 Erwin, NE cor. SE Sec. 9-9-1e. 10-in. csg. 80 ft.; T. sd. 1,526 ft.; set 7-in. 1,526 ft.; comp.; pmpg. 80 B.P.D., 1,532 ft.
K. M. Oil Co. No. 2 Holmes, NW cor. SE NW Sec. 20-9-1e. S.W. and abd. 1,617 ft.

La Salle Parish

Stovall Drlg. Co. No. 4-B Russell, NW cor. Sec. 25-10-1e. S.D. 1,054 ft.; high wtr.
G. C. Walsenham No. 2 Dean, NE cor. SE Sec. 23-9-1e. S.W. and abd. 1,647 ft.
G. C. Walsenham No. 3 Dean, NE cor. SE Sec. 23-9-1e. Drlg. sh. 975 ft.

Natchitoches Parish

Jack Lent et al No. 1 Whatley, SW cor. Sec. 17-10-10. S.O.&G. reported at 1,490-1,516 ft.; T.D. 1,516 ft.; D.S.T. 1,470-56 ft.; tstd. dry in 20 min.; did not set csg.; D.S.T. 2,069-96 ft.; rec. 180 ft. mud and sl.; S.O. and 900 ft. S.W. in 15 min.; cd. sh. 3,462-72 ft.; D.S.T. 3,282-96 ft.; tstd. 100 ft. mud cut with 40-grv. oil; P.B. 3,300 ft.; set 6⅝-in. csg. 3,282 ft.; W.O.C.

Red River Parish

H. B. Schumacher No. 1 Crichton, SW cor. NW Sec. 18-13-10. Set 8-in. csg. 1,065 ft.; tstd. S.S.O.; S.D. 1,450 ft.
D. J. Simmons et al No. 1 Richardson, NE cor. Sec. 24-13-11. Set 5½-in. csg. 2,500 ft.; tstd. S.S.O.; comp.; pmpg. 12 B.P.D., 2,545 ft.

Sabine Parish

Geo. Ellis No. 1 Walker, 500 ft. NW cor. NW SE Sec. 8-4-12. Set 12½-in. csg. 276 ft.; drlg. sh. 1,765 ft.
A. B. House No. 1 Sabine, NW NW Sec. 23-7-14. 8-in. csg. 2,134 ft.; used 7,000 gal. acd.; tstd. dry; cond. mud 3,642 ft.; arng. set 7-in. 3,500 ft.; T.D. 3,642 ft.
D. N. Jolley No. 1 Summers, C SW NE Sec. 14-7-13. Set 10-in. csg. 100 ft.; set 7-in. csg. 2,188 ft.; drlg. hd. ch. rk. 2,516 ft.
LeGrande & Brown No. 1 Tatum, NE cor. NW NE Sec. 17-8-13. Comp.; pmpg. 12 B.P.D.; T.D. 2,340 ft.
Major Oil Co. No. 2-C Bowman Hicks, C NW NE Sec. 4-7-12. Drlg. sh. 475 ft.
Sutton Zwolle Oil Co. No. 2 Bowman

Hicks, NW cor. SW NW Sec. 6-7-13. T. chk. rk. 2,069 ft.; set 6-in. csg. 2,070 ft.; drlg. ch. rk. 2,333 ft.

Voline Oil Co. No. 1 Sabine, NE cor. NW NW Sec. 23-7-14. Reported S.O. in sdy. L. 3,760-3,805 ft.; set 6⅝-in. csg. 3,760 ft.; T.D. 3,805 ft.; tstd. dry 3,805 ft.; S.W. broke in; believe csg. seat gave way; tstd. formation 3,805-3,976 ft.; dry; recmtd. 6⅝-in. csg. 3,760 ft.; W.O.C.: T.D. 3,976 ft.; tstd. S.W. 3,760 ft.; arng. P.B.

Tensas Parish

H. V. Schumacher No. 4 Mound Plantation, Sec. 29-11-12e. S.D. 3,002 ft.

Webster Parish

R. L. Fisher et al No. 1 S. P. D. Coyle, 660 ft. N and 1,880 ft. E of SW cor Sec. 23-21-10. Holly. sd. 5,544-59 ft. and 5,809-16 ft.; set 5½-in. csg. 5,782 ft.; T.D. 5,998 ft.; tstd. S.G.; swbd. S.O.& G.; pig. tbg.; perf. csg. 5,543-59 ft; flwd. 63 B.O. in 3 hrs. then flwd. est. 8 bbls. dist. per hr. on ⅝-in. ck. with est. 4,000,000 cu. ft. gas daily; S.I.; W.O.

Hunt Oil Co. No. 4 Bodcaw-Stewart, 2,155 ft. N and 660 ft. E. SW cor. Sec. 34-21-10. Holly. sd. 5,821-47 ft.; set 9⅝-in. csg. 5,802 ft.; tstd. S.O.&G. in Holly. sd.; T. "D" sd. 8,245-63 ft.; Bdcw. sd. 8,340-81 ft. (dist.); set 7-in. csg. 8,429 ft.; T.D. 8,431 ft.; W.O.C.

Hunt Oil Co. No. 5 Bodcaw-Stewart, NW cor. NE Sec. 33-21-10. Hollwy. sd. 5,734-63 ft. and 5,885-95 ft., oil; set 9⅝-in. csg. 5,938 ft.; drlg. sdy. sh. 7,264 ft.

Hunt Oil Co. and Stanolind O. & G. Co. No. 1 Coffee-Webster Inv. Co. Unit, C NE NW Sec. 36-31-10. 13⅜-in. csg. 677 ft.; no Holly. sd.; set 9⅝-in. csg. 5,780 ft.; T. "D" sd. 8,305 ft.; drlg. sdy. sh. 8,405 ft.; Bod. sd. 8,402-43 ft.; S.O. in bttm. 6 ft.; set 7-in. csg. 8,436 ft.; comp.; 15¾ B.P.H. dist. on ½-in. ck.; T.&C.P. 1,000 lbs.; est. 3,000,000 cu. ft. gas.

Hunt Oil Co. No. 6 Webb, C NE SE Sec. 14-21-10. Set 13⅜-in. csg. 628 ft.; drlg. sh.&L. 5,101 ft.

Hassie Hunt No. 11 Davis, C SE SW Sec. 13-21-10. Drlg. sh. 3,431 ft.

Magnolia Pet. Co. No. 1 Cox, C NW SW Sec. 15-21-10. Set 13⅜-in. csg. 847 ft.; 9⅝-in. csg. 5,868 ft.; drlg. sd., sh.&L. 7,796 ft.

Magnolia Pet. Co. and Ohio Oil Co. No. 1 Coyle-Hodges Unit, SW cor. NW Sec. 21-21-10. Set 9⅝-in. csg. 5,927 ft.; drlg. hd. sd. 7,203 ft.

Magnolia Pet. Co. No. 1 Roseberry Unit, 20 ft. N and W, C SE Sec. 29-23-9. Set 13⅜-in. csg. 887 ft.; T. Pettit L. 5,725 ft.; S.O. 5,764-66 ft.; T. Tr. Pk. 5,900 ft.; set 9⅝-in. csg. 5,962 ft.; T. lwr. Marine 7,850 ft.; T. Bdcw. sd. 8,289 ft., S.W.; T. Davis sd. 8,548 ft.; cg. 9,130 ft.

Midstates Oil Corp. No. 1 Giddens, 100 ft. NW cor. SW SW Sec. 30-21-9. Set 13-in. csg. 100 ft.; drlg. anhy.&sh. 4,803 ft.

Ohio Oil Co. No. 1 Merritt, NE cor. Sec. 14-21-10. Set 13⅜-in. csg. 806 ft.; Holloway sd. 5,769-83 ft.; set 9⅝-in. csg. 5,765 ft.; comp.; 540 B.P.D.; ¼-in. ck.; C.P. 1,200 lbs.; T.P. 775 lbs.; T.D. 5,913 ft.

Stanolind O. & G. Co. and W. Delaney No. 1 Pardee-Coffee Unit, C NE Sec. 36-21-10. T. Tr. Pk. 5,932 ft.; no Holloway sd.; set 9⅝-in. csg. 5,955 ft.; T. "D" sd. 8,499 ft.; T. Bdcw. sd. 8,594 ft.; S.O.; 7-in. csg. 8,595 ft.; comp.; 1,502 B.P.D.; 42.8-gr. oil; ½-in. ck.; C.P. 2,550 lbs.; T.P. 768 lbs.

Union Prod. Co. No. 1 Walker Unit, 50 ft. S, C SE Sec. 30-18-8. Set 9⅝-in. csg. 6,490 ft.; T. Pettit 6,665 ft.; T. Tr. Pk. 6,910 ft.; drlg. sdy. sh. 8,067 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drk

Continental Oil Co. No. 1 Lucion Duhon, Sec. 17-12s-3e. Loc.

Bancroft—Beauregard Parish

Republic Prod. Co. No. 6 Columbia Ld. & Tbr. Co., Sec. 15-6s-13w. Drlg. sh. 4,536 ft.

Republic Prod. Co. No. 4 Lutcher Moore Lbr. Co., Sec. 16-6s-13w. Drk.

Republic Prod. Co. No. 1 Louis Whitman, Sec. 15-6s-13w. T.D. 7,344 ft.; P.B.; sdtrkd.; T.D. 7,371 ft.; 7-in. csg. 7,371 ft.; perf. csg. 7,365-69 ft.; I.P. 378 B.P.D.; ¼-in. ck.

Bateman Lake—St. Mary Parish

Texas Co. No. 2 State-Bateman Lake, Sec. 21-16s-12e. 13⅜-in. csg. 1,700 ft.; drlg. sd.&sh. 5,081 ft.

Texas Co. No. 2 Wax Bayou Co., Sec. 21-16s-12e. Drlg. sdy. sh. 3,714 ft.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co. No. 1 D. J. Morgan. R.U.

Geo. Helis et al No. 1 McInnis, Sec. 36-8s-1w. Loc.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 2 L.L.&E., Bay St. Elaine, Sec. 18-22s-18e. T.D. 6,500 ft.; 9⅝-in. csg. 6,020 ft.; csg. collapsed; sdtrkd.; T.D. 6,500 ft.; mixing mud.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 11 Wilberts, Sec. 67-9s-11e. Loc.

Bayou Choctaw—West Baton Rouge

La. Crusader No. 5 Schwing, Sec. 29-8s-11e. 9⅝-in. csg. 2,250 ft.; T.D. 4,755 ft.; P.B. 4,200 ft.; sdtrkd. 4,214 ft. T.D. 7,878 ft.; P.B. 7,530 ft.; stk. D.S.; P.B. 5,800 ft.; sdtrkd.; T.D. 5,890 ft.; P.B. 5,200 ft.; T.D. 8,648 ft.; stk. D.S.; cutting and pulling.

La. Crusader No. 6 Schwing, Sec. 29-8s-11e. T.D. 8,609 ft.; run 7-in. csg.

Bayou des Allemands—St. Charles Parish

Amerada Pet. Corp. No. 3 St. Charles Ld. Co., Sec. 13-15s-20e. Cd. oil sd. 8,765-66 ft.; drlg. sh. 9,121 ft.

Amerada Pet. Corp. No. 4 St. Charles Ld Co., Sec. 13-15s-2e. Loc.

Caillou Island—Terrebonne Parish

Texas Co. No. 29 State, Sec. 17-23s-20e. Rig.

Texas Co. No. 54 State, Sec. 20-23s-20e. T.D. 4,283 ft.; 7⅝-in. csg. 4,276 ft.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 26 Sch. Ld., Sec. 16-14s-13w. T.D. 2,465 ft.; 13⅜-in. csg. 2,465 ft.; T.D. 6,564 ft.; P.B. sdtrkd.; T.D. 7,011 ft.; fsg.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 5 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. 16-in. csg. 110 ft.; 10¾-in. csg. 1,865 ft.; T.D. 6,055 ft.; stk. D.S.; P.B. and sdtrkd. at 3,718 ft.; drld. to T.D. 4,312 ft.; P.B. 1,850 ft.; W.O.C.

Sun Oil Co. No. 4 Delbert Stark and Brown Cypress Co., Sec. 70-15s-15e T.D. 7,794 ft.; P.B. 6,764 ft.; sdtrkd T.D. 8,268 ft.; stk. D.S.; shot at 8,195 ft.; pulling.

Chalkley Field—Cameron Parish

Humble O. & R. Co. No. 2 Cameron Par Sch. Ld., Sec. 16-12s-6w. Drlg. shly. sd. 6,892 ft.

Charenton—St. Mary Parish

Commerce Oil Co. No. 1 T. Brulation, Sec. 19-13s-10e. Loc.

Edmont Oil Co. No. 2 Blanchard, Sec. 21-13s-9e. T.D. 1,148 ft.; 5½-in. csg. 1,141 ft.; tstd. S.W.; P.B. 1,132 ft.; perf. csg. 1,125-32 ft.; W.O.S.R.

Kinsley Oil, Inc., No. 1-B Hertel, Sec. 30-13s-9e. Loc.

Pan American Prod. Co. No. 1 Achee, Sec. 21-13s-9e. Loc.

Pan American Prod. Co. No. 12 Laws Realty Co., Sec. 36-13s-9e. 8⅝-in. csg. 985 ft.; drlg. sh. 3,596 ft.

Pan American Prod. Co. No. 6 Robichaux, Sec. 11-13s-9e. T.D. 2,618 ft.; 7-in. csg. 2,604 ft.

J. P. Scranton No. 1 State Bayou, Sec. 30-13s-10e. Drlg. sh. 6,500 ft.

Cheneyville—Rapides Parish

Sid Richardson No. 1 Weil Co., Inc., Sec. 55-1s-2e. Bldg. road.

Convent—St. James Parish

Continental Oil Co. No. 2 Realty Operators, Inc., Sec. 16. 13⅜-in. csg. 1,492 ft.; T.D. 7,889 ft.; P.B. 7,275 ft.; sdtrkd. 7,305 ft.; T.D. 8,235 ft.; well blew out; caught fire; rebldg. drk.; R.U.

Creole—Cameron Parish

Superior Oil Co. No. 5 State-Gulf of Mexico, Sec. 4-15s-8w. T.D. 4,253 ft.; P.B.; sdtrkd.; cg. 7,070 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 15 Gumbel, Sec. 33-10s-2e. Drlg. sh. 3,134 ft.

Humble O. & R. Co. No. 2 Rose, Sec. 33-10s-2e. Top salt 6,359 ft.; T.D. 6,412 ft., salt; abd.

Kiva Oil Co. No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 22 State, Sec. 5-22s-16e 13⅜-in. csg. 2,030 ft.; 7-in. csg. 6,901 ft.; T.D. 7,014 ft.; salt; P.B. 6,950 ft.; perf. csg. 6,850-90 ft.; tstd. gas-cut mud; reperf. csg. 6,700-22 ft.; I.P. 10 bbls. dist., 4,000,000 cu. ft. gas; ¼-in. ck.

Eola—Avoyelles Parish

J. E. Jones No. 1 Haas Inv. Co., Sec. 8-2s-3e. R.U.

O'Meara Bros. No. 1 W. F. Kelley, Sec. 7-2s-3e. R.U.

Pomo Prod. Co. No. 1 S. W. Sentel, Sec. 5-2s-3e. Drlg. sh. 3,575 ft.

Sid Richardson No. 2 Haas Inv. Co., Sec. 7-2s-3e. T.D. 1,428 ft.; 10¾-in. csg. 1,428 ft.; drlg. sh. 7,120 ft.; top Cock. 6,506 ft.; oil sd. 6,506-11 ft.; S.W. sd. 6,511-21 ft.; T. Sparta 7,345 ft.; cg. sh. 8,085 ft.; sd.; oil odor; cd. 7,475-81 ft.

Sid Richardson No. 3 Haas Inv. Co., Sec. 7-2s-3e. Drlg. sh. 7,830 ft.

Fausse Point—Iberia Parish

Texas Co. No. 5 State Lake-Fausse Point, Sec. 35-11s-8e. Drlg. sh. 11,260 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 31 State, Sec. 28-23s-33e. T.D. 6,915 ft.; 7-in. csg. 6,915 ft.; perf. csg. 5,675-5,718 ft.; I.P. 129 B.P.D.; ¼-in. ck.; 8% S.W.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 1 Green Heres, Sec. 11-9s-8w. S.D. 5,504 ft.

Union Sulphur Co. No. 8 Kaufman, Sec. 7-9s-8w. Drlg. sh. 1,389 ft.

Golden Meadows—La Fourche Parish

Martex Pet. Corp. No. 1 Falgout Holding Co., Inc., Sec. 9-19s-22e. Cd. sh.& sd.; O.S. 2,636-45 ft. and oil sd. 2,645-54 ft.; drlg. sh. 4,398 ft.

Grand Bay—Plaquemines Parish

Gulf Oil Corp. No. 4 Grand Prairie Lve. Dist., Sec. 48-20s-18e. Loc.

Gulf Oil Corp. No. 2 State, Sec. 6-20s-19e. Canal completed.

Hackberry—Cameron Parish

F. W. Bennett No. 1 Bickford, Sec. 37-12s-10w. 7-in. csg. 7,037 ft.; cg. 7,155 ft.

Gulf Ref. Co. No. 25-A Erwin, Sec. 13-12s-10w. S.D. 3,684 ft., cap rk.; abd.

Gulf Oil Corp. No. 25-A Erwin, Sec. 13-12s-10w. Drk.

O'Meara Bros. No. 1 Mary E. Jones, Sec. 38-12s-10w. Loc.

Superior Oil Co. No. 2-C Kaough, Sec. 30-12s-10w. Drlg. sd.&sh. 6,375 ft.

Texas Co. No. 25-B State, Twp. 12s-9w. Driving piling.

Union Sulphur Co. No. 12 Doiron, Sec. 37-12s-10w. Drlg. sh. 5,996 ft.

Union Sulphur Co. No. 13 Doiron, Sec. 37-12s-10w. T.D. 4,502 ft.; fsg.

Union Sulphur Co. No. 1 Josephine O'Quinn, Sec. 37-12s-10w. Drlg. sd. sh. 3,328 ft.

Union Sulphur Co. No. 45 Watkins, Sec. 13-12s-10w. T.D. 3,203 ft.; P.B. 1,400 ft.; sdtrkd. 1,483 ft.; S.D. 3,088 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, Sec. 37-17s-9e. 9⅝-in. csg. 11,631 ft.; T.D. 12,770 ft.; set 1,659 ft. of 6⅝-in. csg. at 12,645 ft.; set 70 ft. of 6⅝-in. csg. 8,473 ft.; prep. to perf. csg. 11,782-11,847 ft.; hung slotted pipe; cutting and pulling.

Jefferson Island—Iberia Parish

Texas Co. No. 2 Jefferson Island, Sec. 58-12-5e. 18⅝-in. csg. 40 ft.; drlg. sh. 8,404 ft.

Texas Co. No. 2 State-Lake Peigneur, Twp. 12s-5w. Drlg. L.&pyr. 3,633 ft.

Jennings—Acadia Parish

W. T. Burton No. 6 Roboria, Sec. 41-9s-2w. 7-in. csg. 6,721 ft.; fsg. tbg.; T.D. 6,997 ft.; sdtrkd. at 6,118 ft.; drld. to 6,178 ft.; sdtrkd. at 6,023 ft.; T.D. 6,732 ft.; trying to drill by fish; P.B. 6,104 ft.; W.O.C.; sdtrkd. 6,020 ft.; T.D. 6,056 ft.; 7-in. csg. 2,203 ft. and 10¾-in. csg. 2,108 ft.; sdtrkd.; drld. into old hole; P.B.; sdtrkd. 2,302 ft.; T.D. 6,763 ft.; 7-in. csg. 6,711 ft.; perf. csg. 6,292-6,430 ft.; tstg.

Glassell & Glassell No. 5 McFarlain, Sec. 41-9s-2w. T.D. 7,268 ft.; 6-in. csg. 7,268 ft.

Glassell & Glassell No. 6 McFarlain, Sec. 41-9s-2w. T.D. 7,527 ft.; 6⅝-in. csg. 7,522 ft.; perf. csg. 7,340-7,440 ft.; tstg.

Gulf Oil Corp. No. 41 Arnaudet, Sec. 47-9s-2w. Loc.

Shell Pet. Corp. No. 1 Prather. T.D. 7,392 ft.; W.O.C.; comp.; no ga.

Stanolind O. & G. Co. No. 114 Crowley Oil & Mineral Co., Sec. 48-9s-2w. R.U.

Lafitte—Jefferson Parish

Texas Co. No. 2 State-Bayou Norman, Sec. 21-17s-24e. Dredge canal.

Lake Mongoulois—St. Martin Parish

Texas Co. No. 7 State, Sec. 10-10s-9e. Driving piling.

Lake Pelto—Terrebonne Parish

Texas Co. No. 23 State, Twp. 23s-18e. T. salt 6,055 ft.; T.D. 6,225 ft., salt; P.B. 4,750 ft.; W.O.C.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 2 H. J. Ellender, Sec. 32-19s-19e. Cd. sd. S.G. 10,465-74 ft.; T.D. 10,494 ft.; rmg.

Lockport—Cameron Parish

Continental Oil Co. No. 2 J. H. Moss, Sec. 8-10s-9w. R.U.

New Iberia—Iberia Parish

Wm. Helis No. 7 Bolivar, Sec. 56-12s-7e. R.U.

Wm. Helis No. 8 Bullock, Sec. 25-12s-7e. Drlg. sh. 4,335 ft.; no report.

Lisbon-Iberia Oil Corp. No. 7 Gulf fee, Sec. 25-12s-7e. Drlg. sdy. sh. 3,708 ft.

Texas Co. No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co. No. 6 Bryant, Sec. 25-12s-7e. Drk.

Texas Co. No. 1 DeCuir, Sec. 25-12s-7e. Drlg. sh.&L. 4,880 ft.

Texas Co. No. 2 Gonsoulin, Sec. 13-12s-7e. Cg. sdy. sh. 8,689 ft.

Texas Co. No. 2-A Hanzon, Sec. 54-12s-7e. T.D. 8,101 ft.; 7⅝-in. csg. 8,075 ft.

Texas Co. No. 3-B Hanszen, Sec. 54-12s-7e. 7-in. csg. 6,838 ft.; T.D. 7,133 ft.; salt; P.B. 7,073 ft.; perf. csg. 5,630-60 ft.; showed mud and gas; abd.

Texas Co. No. 1 Renaudet et al, Sec. 71-12s-7e. T.D. 8,343 ft.; 9⅝-in. csg. 8,338 ft.

North Tepetate—Acadia Parish

Atlantic Ref. Co. No. 1 Aden & Doga, Sec. 11-7s-2w. 16-in. csg. 319 ft.; drlg. sh. 3,022 ft.

Atlantic Ref. Co. No. 4 Klumpp, Sec. 12-7s-2w. Drlg. sh. 8,216 ft.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 4 H. L. Garland, Sec. 4-6s-5e. Bldg. road.

Pan American Prod. Co. No. 1 Rene Nezat, T. salt 5,399 ft.; T.D. 5,404 ft.; abd.

Y. D. Spill No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 38 Orleans Lve. Dist., Sec. 13-18s-15e. Drlg. sd. 2,162 ft.

Western Gulf Prod. Co. No. 1 Paseale, Sec. 6-18s-27e. Loc. abd.

Western Gulf Prod. Co. No. 1-A Treadway, Sec. 6-18s-27e. Loc. abd.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp. No. 1-A Plaquemines Ld. Co., Sec. 18-19s-17e. T.D. 5,600 ft.; run 9⅝-in. csg.

Gulf Ref. Co. No. 5 State, Sec. 17-19s-17e. Loc.

Gulf Oil Corp. No. 8 State, Sec. 18-19s-17e. Drlg. sh. 5,919 ft.

Gulf Oil Corp. No. 9 State QQ, Sec. 18-19s-17e. Loc.

South Houma—Terrebonne Parish

Shell Pet. Corp. No. 2 Peters. Cg. sh. 10,310 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., Sec 34-15s-19e 18⅝-in. csg. 262 ft.; T.D. 11,312 ft.; 7-in. csg. 11,312 ft.; T.A.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 2 Sturdivant. Sec. 36-10s-4w. Drlg. sd.&sh. 9,102 ft.

Timbalier Bay—La Fourche Parish

Gulf Oil Corp. No. 4 State. T.D. 7,268 ft.; sdtrkd.; 5-in. csg. 5,320 ft.; T.D. 5,340 ft.; failed to flow; S.D.

Valentine—La Fourche Parish

Pan American Prod. Co. No. 19 Harang, Sec. 8-17s-20e. Drlg. sh. 1,056 ft.

John Vacarro et al No. 2 Acosta Hrs., Sec. 9-17s-20e. Drlg. sh. 2,700 ft.

Villa Platte—Evangeline Parish

Continental Oil Co. No. 1 Crise Deville, Sec. 26-3s-2e. Drlg. sh. 8,043 ft.

Continental Oil Co. No. 3 Haas, Sec. 44-3s-2e. Loc.

Continental Oil Co. No. 3 Opelousas-St. Landry Securities Co., Sec. 44-3s-2e. Drlg. sh. 1,340 ft.

Continental Oil Co. No. 1 Rene McDaniel, Sec. 45-3s-2e. Drlg. sd. 1,244 ft.

Continental Oil Co. No. 1 Tate, Sec. 45-3s-2e. Drlg. sh. 8,890 ft.

Continental Oil Co. No. 2 Vidrine, Sec. 34-3s-2e. T.D. 9,135 ft.; S.W. sd.; P.B. 8,976 ft.; 6-in. perf. csg. 8,976 ft.; I.P. 360 B.P.D.; ¼-in. ck.

Continental Oil Co. No. 3 Vidrine, Deville, Sec. 46-3s-2e. Drlg. sh. 8,050 ft.

Texas Co. No. 3 Marman fee, Sec. 45-3s-2e. Loc.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co., Sec. 23-21s-30e. Loc.

Tide Water Asso. Oil Co. No. 4 Buras Levee Dist., Sec. 23-21s-20e. T. salt 3,120 ft.; sdtrkd.; drlg. sh. 2,675 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 4 Calcasieu Natl Bnk., Sec. 12-9s-6w. Drlg. sh. 8,633 ft.

Union Sulphur Co. No. 1 Dovaran-O'Connor, Sec. 12-9s-6w. Drlg. sh. 2,658 ft.

Union Sulphur Co. No. 2 Osmon, Sec. 7-9s-5w. T.D. 9,111 ft.; P.B. 5,910 ft.; sdtrkd.; drlg. sd. 7,127 ft.

S. LOUISIANA WILDCATS

Acadia Parish

T. T. Tolson et al No. 1 J. Turner, Sec. 23-7s-1e. M.I.M.

Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. Drk.

Allen Parish

Bel Oil Corp. No. 1 J. A. Bel, Sec. 22-6s-3w. Loc.

Assumption Parish

Humble O. & R. Co. No. 1 Milliken & Farewell Co., Inc., Sec. 79-14s-14e. 13⅜-in. csg. 2,978 ft.; drlg. sd. 11,581 ft.

Beauregard Parish

Atlantic Ref. Co. No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.

Atlantic Ref. Co. No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.

Calcasieu Parish

David B. MacDaniel No. 2 Sch. Ld., Sec. 16-9s-7w. 15½-in. csg. 46 ft.; 10¾-in. csg. 1,299 ft.; T.D. 7,890 ft.; S.D.

Cameron Parish

Superior Oil Co. No. 2 John Sells, Sec. 4-15s-8w. Drlg. sd. 6,823 ft.

Superior Oil Co. et al No. 1 State, Grand Lake, Sec. 24-13s-4w. Drlg. clay 260 ft.

Iberia Parish

Texas Co. No. 1 Petit Anse, Sec. 59-13s-6e. Cg. 9,123 ft.

Texas Co. No. 3-B State-Vermilion Bay, Twp. 16s-5e. Drlg. sdy. L. 4,292 ft.

Iberville Parish

California Co. No. 1 Schwing Lbr. Co., Sec. 96-10s-10e. 20-in. csg. 177 ft.; 9⅝-in. csg. T.D. 10,106 ft.; twisted off drill collar; P.B.; sdtrkd. 9,613 ft.; drlg. sh. 9,670 ft.

Humble O. & R. Co. No. 1 Iberville Mortgage Loan Co., Inc., Sec. 74-7s-10e. 20-in. csg. 208 ft.; drlg. sh. 3,413 ft.

Shell Pet. Corp. No. 1 Natalbany Lbr. Co., Sec. 18-9s-2e. Drlg. sh. 7,820 ft.

Jeff Davis Parish

Union Sulphur Co. No. 1 H. B. Tietje. Sec. 36-7s-4w. Bldg. drk.

La Fourche Parish

Gulf Oil Corp. No. 1 Grandison Ld. Co., Sec. 14-20s-23e. Drk.

Texas Co. No. 1 L.L.&E. Golden Mead-

ows, Sec. 77-19s-21e. T.D. 10,751 ft.; 9⅝-in. csg. 10,744 ft.; W.O.C.
Texas Co. No. 1 State-Catfish Lake, Sec. 77-19s-21e. 18⅝-in. csg. 90 ft.; T.D. 8,205 ft.; D.S. stk.; P.B. 5,783 ft.; sdtrkd.; T.D. 10,281 ft.; abd.

Orleans Parish

W. T. Burton No. 1 L.&N.R.R., Sec. 18-11s-15e. Drlg. sh. 6,900 ft.
W. T. Burton No. 3 L.&N.R.R., Sec. 25-11s-14e. Loc.
W. T. Burton No. 1-B R. E. E. de Montluzin, Sec. 1-10s-13e. Drk.

Plaquemines Parish

Texas Co. No. 1 L.L.&E., Bastian Bay, Sec. 43-20s-28e. 9⅝-in. csg. 9,540 ft.; T.D. 10,029 ft.; fsg.

Pointe Coupee Parish

Falcon-Seaboard No. 1 J. H. Hobgood, Sec. 8-1s-7e. Bldg. drk.

Rapides Parish

Gulf States Explt'n. No. 1 Erwin & Bishop, Sec. 35-1n-3w. R.U.

St. Bernard Parish

Gulf Ref. Co. No. 4-State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; lost core bbl.; fsg.

Vendome Pet. Corp. No. 1 Kenilworth Plantation, Sec. 59-13s-14e. 9⅝-in. csg. 10,809 ft.; cd. 10,880-10,900 ft., sdv. sh.; gas odor; cd. gas sd. 10,990-11,050 ft.; drlg. sh. 11,170 ft.

St. Charles Parish

Texas Co. No. 1 L.L.&E. Paradis, Sec. 39-14s-20e. 9⅝-in. csg. 8,975 ft.; drlg. sh. 9,730 ft.

St. James Parish

Shell Pet. Corp. No. 1 Shexnayder, Sec. 38-12s-15e. 9⅝-in. csg. 8,534 ft.; cg. sdy. sh. 10,410 ft.

St. Martin Parish

Magnolia Pet. Co. No. 1 Mercelin, Sec. 8-10s-7e. Drlg. sh. 6,583 ft.
Roper & Todd No. 1 Levert Plantation, Lot 40, Sec. 42-10s-7e. Loc.

St. Mary Parish

Phillips Pet. Co. No. 1 Whitney Natl. Bnk., Sec. 13-15s-12e. Drlg. sh. 9,410 ft.

St. Tammany Parish

A. P. Portas No. 1 W. C. Forbes, Sec. 33-7s-15e. Loc. abd.

Terrebonne Parish

Texas Co. No. 2 State-Coon Point, Twp. 23s-14e. 13⅜-in. csg. 1,900 ft.; T.D. 2,851 ft.; driving piling; bldg. drk.

TEXAS

Week Ending March 11

GULF COAST FIELDS

Old Ocean—Brazoria County

Harrison & Abercrombie No. 3 Armstrong Plantation, Polley & Chance Sur. T.D. 10,538 ft.; tstg.
Harrison & Abercrombie No. 5 Armstrong, Polly & Chance Sur. Drlg. sh. 8,439 ft.
Harrison & Abercrombie No. 6 Bernard River Ld. & Dev. Co., C. Breen Sur. 9⅝-in. csg. 6,996 ft.; drlg. sh.&L. 9,036 ft.
Harrison & Abercrombie No. 4 Chenault, C. Breen Sur. R.U.
Sun Oil Co. No. 2 Campbell, Chas. Breen Sur. R.U.

Cedar Point—Chambers County

Standard Oil Co. of Texas et al No. 56-94 State. Drlg. sh. 2,612 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 2 Barrow, A. Ybarbo Sur. T.D. 8,480 ft.; 7-in. csg. 8,473 ft.; tstg.
Sun Oil Co. No. 1 Pipkin, W. M. Mays Sur. No. 104. T.D. 8,413 ft.; 7-in. csg. 8,407 ft.; swbg.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1 Tassie Lotz, J. B. Jamison Sur. Loc.

West Columbia—Brazoria County

Frost & Dunman No. 1 E. C. Parker, G. Tennille Sur. T.D. 4,380 ft.; hit cavity.
General Crude Oil Co. No. 1-B Campbell, S. M. Williams Sur. Drlg. sh. 3,926 ft.
Texas Co. No. 31 Abrams, G. Tennille Sur. T.D. 5,713 ft.

Green's Lake—Galveston County

Sun Oil Co. No. 3 Houston Farms Dev. Co., D. Buckley Sur. T.D. 6,372 ft.

League City—Galveston County

Midstates Oil Co. No. 2-A Maco Stewart, Perry & Austin Sur. Cg. sdy. sh. 9,806 ft.
Phillips Pet. Co. No. 1 Bertha Lobit Wilson, Perry & Austin Sur. Drlg. sh. 5,212 ft.
Phillips Pet Co. No. 1 J. C. Ott, S. F. Austin Sur. Cd. O.S. 7,070-9,110 ft.; T.D. 10,545 ft.; 5½-in. csg. on bttm.; perf. csg. 9,245-63 ft.; flwd. brksh. wtr some oil; perf. csg. 9,242-60 ft.; flwg. into pits; est. 12 B.F.P.H.; ¼-in. ck.; 34° brksh. wtr.
Phillips Pet. Co. No. 1 Stewart, Title Guaranty, S. F. Austin Sur. Top sd. 9,072 ft.; T.D. 9,274 ft.; P.B.; sdtrkd.; T.D. 9,333 ft.; cg. S.W. sd. 10,081 ft.
Salt Dome Oil Corp. No. 2 Ross-Stewart, Perry & Austin Sur. Drlg. sh. 3,837 ft.
West Prod. Co. No. 1 fee, Lot 2, Blk. 5, Perry & Austin Sur. Loc.

Bammel—Harris County

H. M. Harrell et al No. 2 John Ehrhardt, Geo. DeLesdenier Sur. Drlg. sh. 5,836 ft.

Clear Lake—Harris County

Humble O. & R. Co. No. 6-C Humble-West, Geo. B. McKinstry Sur. Drlg. 1,236 ft.

Clinton—Harris County

Stanolind O. & G. Co. No. 2 Edwards, Reels & Trobough Sur. Drk.

Eureka—Harris County

Jack Frazier No. 1 W. T. Helberg, H. Reinerman Sur. R.U.
Jack Frazier No. 1, Shady Acres subd., Henry Reinerman Sur. Perf. csg. 7,684-98 ft.; tstg.; T.D. 7,720 ft.
Houston Oil Co. No. 3 Helberg & Lackner, J. Reinerman Sur. Loc.
Houston Oil Co. No. 2 D. Lackner, H. Reinerman Sur. R.U.
Tide Water Asso. Oil Co. No. 2 Roy J. Reinerman Sur. Drlg. sh. 6,637 ft.

Fairbanks—Harris County

Kirby Pet. Co. No. 1 Daniels, S. S. Reynolds Sur. Cd. oil sd. 7,227-48½ ft.; T.D. 7,252 ft.; perf. csg. 7,237-39 ft.; flwd. gas and S.W.; sqzd. perf.; reperf. csg. 7,203-11 ft.; C.O.; making 2,500,000 cu. ft. gas.
Sinclair Prairie Oil Co. No. 1 Frazier, J. D. Egbert Sur. R.U.
Sinclair Prairie Oil Co. No. 3 Goodykoontz, W. S. Powell Sur. Loc.
Stanolind O. & G. Co. No. 1 W. F. Jahnke, 148-ac. tr., Sam Lewis Sur. Drlg. sh. 3,867 ft.
Stanolind O. & G. Co. No. 2 Look, S. Lewis Sur. Loc.
Union Prod. Co. No. 1 Murphy, T. M. Dorsett Sur. T.D. 7,028 ft.; D.S.T. 7,009-28 ft.; rec. 1,000 ft. oil.
H. E. Williams et al No. 1 Behne, W.C. R.R. Sur. T.D. 6,864 ft.; W.O.C.; rec. 21 stands of P.L.O.; 9 min.; D.S.T. 6,853-62 ft.; perf. csg. 5,853-59 ft.; flwg. est. 1 B.F.P.H.; ⅛-in. ck.

Friendswood—Harris County

Humble O. & R. Co. No. 10-B Humble-West, Luke Hemenway Sur. Drlg. sh. 4,037 ft.
Humble O. & R. Co. No. 13-B Humble-West, Luke Hemenway Sur. Drlg. sh. 3,767 ft.
Humble O. & R. Co. No. 17-B Humble-West, Luke Hemenway Sur. T.D. 6,040 ft.; T. sd. 5,993 ft.
Humble O. & R. Co. No. 9 West Prod. Co., T. Choate Sur. Drlg. sh. 1,520 ft.

Cheek—Jefferson County

Geo. H. Echols No. 1 Beaumont Launch Club, C. Hildebrandt Sur. Drlg. sh. 7,637 ft.
Humble O. & R. Co. No. 2 Broussard, C. Hillebrandt Sur. Loc.
Humble O. & R. Co. No. 3 Jefferson Ld. Co., C. Hillebrandt Sur. Cg. 7,726 ft.
Humble O. & R. Co. No. 1 Pitre, C. Hillebrandt Sur. Drlg. sh. 7,636 ft.
Shell Pet. Corp. No. 1 Steinhagan, Wm. Carr Sur. Drlg. sh. 5,144 ft.

La Belle—Jefferson County

Sun Oil Co. No. 5 Broussard-Hebert, T. &N.O. Sur. No. 207. R.U.

Cordele—Jackson County

H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Esperson—Liberty County

General Crude Oil Co. No. 1 Burgess et al, A. McNeil Sur. Cg. 7,612 ft.

Hardin—Liberty County

Atlantic Ref. Co. No. 1 Humphrey, F. Hardin Sur. Drlg. sh.&L. 7,186 ft.
Gulf Oil Corp. No. 4 Cessna, H. B. Johnston Sur. R.U.
Texas Co. No. 2 Smith, A. A. Hardin Sur. R.U.

Orange—Orange County

Continental Oil Co. No. 18 Chesson, Wm. Dyson Sur. T.D. 5,512 ft.; reperf. csg. 5,491-95 ft.; blew out; fsg.
Gulf Oil Corp. No. 2 Laflour, Wm. Dyson Sur. T.D. 5,757 ft.; 5½-in. csg. 5,712 ft.; swbg.
Gulf Oil Corp. No. 10-A Winfree, Wm. Dyson Sur. Loc.
John Mayo No. 1 M. J. Williams, Dyson Sur. Drk.
Red Bank Oil Co. et al No. 1 Allie Chesson, Wm. Dyson Sur. Cg. 5,887 ft.
Union Prod. Co. No. 5 Lutcher Moore, J. Dyson Sur. Drlg. sh. 1,467 ft.

Port Neches—Orange County

Texas Co. No. 13 Kuhn, M. E. Hall Sur. T.D. 5,975 ft.; tstg.

Ace—Polk County

Dick Schwab No. 1-C Kirby-West Lbr. Co., G. A. Thomas Sur. Loc.
Shell Pet. Corp. No. 1 Doucett, P. A. Sublett Sur. T.D. 7,793 ft.; rmg.
Shell Pet. Corp. No. 2 Doucett, P. A. Sublett Sur. Loc.

Segno—Polk County

Gulf Oil Corp. No. 4 Quinn, A. Morales Sur. R.U.
Gulf Oil Corp. No. 6-B Quinn, A. Morales Lge. 5½-in. csg. 5,202 ft.; T.D. 5,279 ft.
Gulf Oil Corp. No. 1 Ragan, I.&G.N. Sur. No. 15. R.U.
Gulf Oil Corp. No. 5 Ragan, I.&G.N. Sur. No. 15. Loc.
Gulf Oil Corp. No. 6 Ragan, I.&G.N. Sur. No. 15. T.D. 8,070 ft.; comp.; no ga.
Humble O. & R. Co. No. 11-BX Kirby, M. Victor Sur. Drlg. sh. 3,739 ft.

Spurger—Tyler County

Republic Prod. Co. No. 18 fee, N. Hurd Sur. Drlg. sh. 5,739 ft.

Katy—Waller County

Magnolia Pet. Co. No. 1 Allsup, E. B. Conch Sur., Sec. 108. Loc.
Stanolind O. & G. Co. No. 1 McCarthy, Williamson, H.&T.C. Sur. Drlg. sh. 7,239 ft.

GULF COAST WILDCATS

Brazoria County

Crosby Drlg. Co. No. 1 Geo. S. Wilson, A. C. Reynolds Sur. 10¾-in. csg. 2,925 ft.; drlg. sh. 5,827 ft.
Fabriguze et al No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Bryan Mound). M.I.M.
Hamman Explt'n. Co. No. 1 Darrington, Achilles McFarland Sur. 10¾-in. csg. 1,200 ft.
Housh & Thompson No. 1 Lula Allen, Kate Ehrmann Sur. Loc.
Humble O. & R. Co. No. 1 Walker, S. Marsh Sur. 13⅜-in. csg. 2,419 ft.; cg. T.D. 10,033 ft.; abd.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.
L. D. Roberts No. 1 C. H. Lang, T.&N. O. Sur. No. 35. Drk.; (cor.).

Colorado County

Mills Bennett Prod. Co. No. 1 J. M. Truchard, Ed Curbit Sur. 13⅜-in. csg. 968 ft.; T.D. 7,845 ft.; prep. to core.

Galveston County

Sun Oil Co. No. 2 Cade, A. Dickson Sur. T.D. 8,009 ft.; 9⅝-in. csg. 8,009 ft.; perf. csg. 7,774-78 ft.; tstd. 21 stands oil, 3 stands S.W. on D.S.T.; completing.

Harris County

H. C. Cockburn No. 1 Lena Griffith, Adam Sur. Loc.
H. H. Givens No. 2 F. K. Adone, David Middleton Sur. Drk.
Midwest Royalty Co. No. 1 Westmoreland Farms, Lot 12, Blk. 39, James Wells Sur. Loc.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.
Humble O. & R. Co. No. 13-B McFaddin-State, Sec. 8. 10¾-in. csg. 2,758 ft.; T.D. 5,859 ft.; D.S. stk.; backed off at 3,688 ft.; P.B. 4,220 ft.; sdtrkd.; T.D. 6,014 ft.; sdtrkd.; T.D. 6,115 ft.; P.B.; sdtrkd.; 7-in. csg. 5,919 ft.; drlg. sh. 6,212 ft.
Navarro Oil Co. et al No. 1 T. F. Koch. Flutero Lopez Sur. Drlg. sh. 2,633 ft.

Matagorda County

Maja Oil Co. No. 1 Robbins, A. Sheppard Sur. R.U.
Pierce Est. No. 1-P fee, B. J. Rawls & O. H. Stout Sur. Spd.
Sun Oil Co. No. 1 Cavallin, Theo. F. Koch subd., John Duncan Sur. 9⅝-in. csg. 8,502 ft.; T. gas sd. 9,313 ft.; T.D. 9,532 ft.; rmg.

Montgomery County

Deep South Pet. Co. No. 1-A Foster Lbr. Co., Pryor Bryan Sur. Loc.
O. C. Garvey et al No. 1 Foster Lbr. Co., Neil Martin Sur. M.I.M.
H. A. Pennington et al No. 1 F. L. Banker, L. M. H. Washington Sur. S.D. 1,033 ft.
J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. S.D. 3,623 ft.

Newton County

Sun Oil Co. No. 1 Peavy-Moore Lbr. Co., T.&N.O.R.R. Sur. Drlg. sh. 2,675 ft.

San Jacinto County

J. W. Frazier No. 1 Annie Smith, J. D. Martinez Sur. No. 10. M.I.M.
Carl Keels et al No. 1 Ed Mays, Lot 7, R. O. Lusk Sur. Loc.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, John Lightfoot Sur. R.U.

Wharton County

Helmerich & Payne No. 1 J. L. Myatt, E.T.R.R. Sur. T.D. 6,510 ft.
Humble O. & R. Co. No. 1 J. D. Ecker, Beaty Seale & Forwood Sur. Bldg. rd.

S. W. TEXAS WILDCATS

Bee County

Rodney DeLange et al No. 1 B. F. Boss, Sam May Sur. T.D. 4,036 ft.; abd.

Bell County

M. M. Gordon No. 1 Steele, Oliver T. Tyler Sur. S.D. 1,201 ft.
G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

Fred Beatty No. 1 Joppich, Iginio Tejado Sur. No. 186. 6⅝-in. csg. 575 ft.; drlg. sh. 640 ft.; no report.
H. G. Krumm No. 1 Kempf, Samuel McCollough, Jr., Sur. 54. T.D. 770 ft.; tstd. small amt. of oil; reworking well. tstg. on pmp.
L. L. Skaggs No. 1 Braubach, Fernando Rodriquez Sur. S.D. 325 ft.

Blanco County

E. L. Nixon No. 2 Crist, John McClenechen Sur. No. 94. S.D. 285 ft.

Brooks County

Humble O. & R. Co. No. 5 McGill Bros., La Blanca gr. Cg. 5,286 ft.

Caldwell County

Ben H. Fuchs No. 1 Chamberlain, Jos. Burleson Sur. Drlg. sh. 60 ft.

Calhoun County

Continental Oil Co. No. 1 J. J. Welder, Eusebio Hidalgo gr. Loc.

Comal County

O. W. Killam No. 1 Gruene, Henry Foster Sur. T.D. 1,742 ft., L.; S.D.

De Witt County

Richardson et al No. 1 W. D. McCurdy, John Hunt Sur. T.D. 150 ft.

Duval County

G. C. Glasscock No. 1 Nicholas Garcia, Santa Cruz De Concepcion gr. S.D. 4,039 ft.
Gravis and Doran No. 1 Parr, San An- T.D. 6,281 ft.; P.B. 5,890 ft.; 20-min. D.S.T. 5,860-90 ft. rec. 1,130 ft. gas-cut mud; 7-in. csg. 5,998 ft.
Frank Gravis No. 3 Schallert, Seale, Morris & Seale Sur. No. 2550. T.D. 3,168 ft.; P.B. 1,800 ft.; prep. to sdtrk.
Hamill & Smith No. 1 A. Well, B.S.&F. Sur., Sec. 567. T.D. 3,506 ft.; abd.
Lanning & Coffield et al No. 1 W. T. Peters, C.C.S.D. Co. Sur. No. 66. T.D. 3,020 ft.; abd.
Luling O. & G. Co. No. 1 Pope Dimitt, Jose Marcelo Ynojosa gr. 10-in. csg. 561 ft.; drlg. sdy. sh. 2,726 ft.
Magnolia Pet. Co. No. 1 Denman, Santos Garcia gr. R.U.
J. G. Mayo et al No. 1 Hoffman, San Diego de Arriba gr. Drlg. sh. 3,510 ft.
W. A. Wagner No. 1 D. J. Welkel, John H. Gibson Sur. No. 497. R.U. and S.D.

Goliad County

Eltobuit Oil Co. No. 1 Pettus, Maria De Jesus Yvarvo Sur. Drlg. sh. 4,020 ft.; no report.
Martex Oil Co. No. 1 Wm. F. Albrecht, Thos. Hancock Sur. Tstd. 530 lbs. pressure; 20 ft. dist. cut mud; cg. 5,239 ft.

Gonzales County

Otton Elder No. 1 Wilkinson, Russell Ward Sur. S.D. 425 ft.
Hochheim Dev. Trust No. 1 Dubose, E. G. Coffman Sur. 10-in. csg. 37 ft.; S.D. 2,600 ft.

Guadalupe County

Diamond Half Oil Corp. No. 1 Jacobs, B. Fuqua Sur. Drlg. sh. 2,458 ft.
John Hueners No. 1 Boecker, John Baker Sur. No. 26. S.D. 915 ft.

Hidalgo County

Pan American Prod. Co. No. 1 J. De la Vina Vicente Hinojosa gr. T.D. 8,125 ft.; P.B. 6,391 ft.; D.S.T. 7,985-8,023 ft.; tstd. S.W.; drld. plug; found cmt. soft; P.B. 6,050 ft.; sdtrkd.; drlg. sh. 6,459 ft.

Jim Hogg County

A. W. Dillard No. 1 Julian Ramirez, John S. Williams Sur. Drlg. sh. 1,469 ft.
Humble O. & R. Co. No. 9 Bass, San Raphael gr. Loc.
Humble O. & R. Co. No. 6 McGill Bros., south offset to No. 8 Bass. Drlg. sh. 1,356 ft.
Humble O. & R. Co. No. 1 Mestena O. & G. Co., Fowler & Rankin subd., Pattos Blanco gr., R. G. Sars Sur. 16-in. csg. 70 ft.; T.D. 2,007 ft.; 10¾-in. csg. 1,563 ft.; T.D. 5,122 ft.; S.D.; D.S.T. 5,096-5,116 ft. tstd. 90 ft. drlg. mud cut with oil and gas; steady blow gas.
Johnson & Robinson No. 1 Palacios, Mary Montgomery Sur. S.D. 2,465 ft.

Jim Wells County

F. A. Gillespie & Sons No. 1 Shear, Blk. 24, Adam Beatty & Moulton Sur. 10¾-in. csg. 999 ft.; drlg. sh. 4,650 ft.
H. H. Howell et al No. 1 W. T. Wright, Ross M. Bridges Sur. T.D. 6,800 ft.; well tried to blowout at 6,500 ft.; 5½-in. csg. 6,790 ft.; perf. csg. 6,644-48 ft.; tstd. S.W.; S.S.O.; T.P. 600 lbs.; C.P. 900 lbs.; killed well; reperf. csg. 6,644-48 ft.; no results; abd.
Tom Graham No. 1 N. O. Adams, Macellino Lopez gr. T.D. 5,699 ft.; make D.S.T.
Magnolia Pet. Co. No. 1 Samuel Maun, Los Olmos y Loma Blanca gr. 7-in. csg. 6,314 ft.; T.D. 7,560 ft.; run elec.

survey; cmtd. 5-in. lnr. at 7,257 ft.; perf. csg. 7,155-65 ft.; D.S.T. failed; perf. csg. 7,093-7,110 ft.; tstd. S.W.

W. H. Mathews No. 1 Frances Clark, Los Precenos gr. 10¾-in. csg. 617 ft.; tstd. 450 lbs. press.; 1 qt. oil on D.S. T. 5,141-58 ft.; 5½-in. csg. 5,309 ft.; T.D. 5,319 ft. (cor.); perf. csg. 5,202-12 ft.; tstd. S.W.; perf. csg. 5,138-42 ft.; flwd. 5 bbls. dist. per day; 9/64-in. ck.; killed well; reperf. csg. 4,825-35 ft.; flwd. est. 25 B.F.P.D., 99% S.W.; T.P. 140 lbs.; C.P. 720 lbs.; perf. csg. 4,805-18 ft.; rec. 4,600 ft. S.W.; perf. csg. 4,805-14 ft.; C.O.

Parr Drlg. Co. et al No. 1 W. G. Carter, LaVaca gr. Cg. sd. 5,010 ft.

Kenedy County

Humble O. & R. Co. No. 1 Kenedy rnh., Penaseal gr. Drlg. sh. 4,248 ft.

Kleberg County

Pure Oil Co. No. 1 State, Tr. No. 155. T.D. 7,320 ft.; perf. csg. 7,235-47 ft.; rec. 270 ft. 42-gr. oil; tstg.

Lavaca County

H. L. Edwards et al No. 1 Frank Rather, M. Wooten Sur. Drlg. sh. 1,327 ft.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. T.D. 6,404 ft.; acd.; R.U. pmpd. 100 bbls. fluid; 36 hrs.; 3 bbls. oily emulsion, bal. S.W.; dpnd. to T.D. 6,424 ft. fluid standing; 5,000 ft. S.W. and oil; P.O.P.; pmpg. at rate of 2 B. O. and 50 bbls. S.W. per day.

Live Oak County

Bruce Albright No. 1 Texas Joint Stock Ld. Bnk., J. Poitevent Sur. No. 197. Drlg. sh. 637 ft.

Harry Hotchkin No. 1 Wade, J. Sommers Sur. No. 147. Cg. 2,327 ft.

L. W. Stieren No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

Holbrook and O'Farrell No. 1 Miles, J. Poitevent Sur. S.D. 1,003 ft.; tstg. sd. 968-75 ft.; showed wtr; drlg. ahead.

Merle Morton No. 1 Valadez, Antonio De La Rosa, Porc 85. Loc.

Mid-Western Pet. Corp. No. 1 C. E. Byrne, Geo. Pittuck Sur. R.U.

C. D. Scarborough and Bigiane No. 1 Paul Foyt, James Garner Sur. No. 6. Drlg. sh. 937 ft.

Shumway & Burns No. 3 Shiner, Sec. 21 of Shiner rnh. T.D. 1,565 ft.; abd.

R. M. Strum and Womack No. 1 Smith and Leischner, A. Zumwalt Sur. S.D. 949 ft.; C.O.

Medina County

John Clopton et al No. 1 T. A. Wilson, Wm. P. Scott Sur. S.D. 2,005 ft.; abd.

J. I. and J. W. Cromwell No. 1 Tschirhart, I. J. Rogers Sur. No. 18. Drlg. 507 ft.; no report.

Gilcrease Oil Co. No. 1 W. S. Lilley, Abl Clark Sur. T.D. 3,197 ft., L.; fsg.

Victor Ziegler No. 1 Paul Habv, Wm. G. Still Sur. No. 1. Drlg. 936 ft.

Milam County

Alex Krause No. 1 Graves, Jackson Hall Sur. S.D. 900 ft.

Nueces County

H. D. & H. Oil Co. No. 1 Wright, V. L. De Herrera gr. T.D. 5,634 ft.; fsg.

Heep Oil Corp. et al No. 1 G. W. Smith, Jose Vicente Lopez de Herrera gr. 10¾-in. csg. 1,090 ft.; T.D. 5,050 ft.; 7-in. csg. 5,049 ft.; perf. csg. 5,043-47 ft.; swbd.; no show; drlg. sh. 6,430 ft.

Seaboard Oil Co. No. 8 Chapman, Laureles Farm Trs. (1 mi. S of Chapman field). Cg. shly. sd. 6,342 ft.

Shell Pet. Corp. No. 1 Griffith, Vicente Lopez de Herrera gr. Drlg. sh. 5,566 ft.

Refugio County

Copano Oil Co. No. 2-C O'Connor, Timothy Hoyt Sur. (Mellon Creek field). T.D. 5,900 ft.; 5-in. csg. 5,895 ft.; I.P. 305 B.P.D.; ¼-in. ck.

Copano Oil Co. No. 3-C O'Connor, Timothy Hoyt Sur. (Mellon Creek field). T.D. 5,897 ft.; sd. 5,887-97 ft.; I.P. 395 B.P.D.; ¼-in. ck.

Hewitt & Dougherty No. 1-B Rooke, Aldrete 6¼ Lge. T.D. 7,021 ft.; abd.

Morgan, Gulf Oil Corp. No. 1 B. D. Rooke, Aldrete 6¼ Lge. (La Rosa field. T.D. 5,714 ft.; W.O.C.; rec. 1,000 ft. P.L.O.; D.S.T. 5,709-14 ft.; T.D. 6,-350 ft.; W.O.C.

San Patricio County

Culton et al No. 1 McCampbell, Peter Mahoney Sur. Cg. sh. 7,137 ft.

Smith O. Morgan No. 1 H., S. J. Pollan Sur. R.U.

Plymouth Oil Co. No. 1 Wilson, John Brown Sur. Drlg. sh. 6,067 ft.

Republic Nat. Gas Co. No. 1 Virginia Crockett. D. L. & Co. Sur. Drlg. sh. 1,750 ft.

Starr County

Banks Miller Oil Co. No. 2 Garcia, Juan Salinas Porc. No. 71. S.D. 575 ft.

Magnolia Pet. Co. No. 1 M. M. Garcia, S. Vela Porc. No. 90. Drlg. sh. 2,826 ft.

Rhinehart and Bowman No. 1 Bowman J. C. McCarty Sur. M.I.M.

Rowan-Hope and Transwestern Oil Co No. 1 W. I. Cameron, Geo. W. Smith Sur. R.U.

Sun Oil Co. No. 1 Olivarez, C.C.S.D.&R. G.N.G. Sur. T.D. 5,650 ft.; 7-in. csg. 5,330 ft.

Sun Oil Co. No. 3 Olivarez, C.C.S.D.&R. G.N.G. Sur. No. 239. Drlg. sh. 1,236 ft.

W. W. Zimmerman No. 1 M. S. Tijerina, H.E.&W.T.R.R. Sur. No. 299. T.D. 1,-374 ft.; abd.

Travis County

Oscar Raesz et al No. 1 J. W. Swahn, Phillips McElroy Sur. No. 16. Drlg. sh. 265 ft.; no report.

Webb County

Brazos Young Corp. No. 1 A. M. Bruni, J. Borego gr. Drlg. 1,267 ft.

Gilcrease Oil Co. No. 1 W. E. Trafton, J. Poitevent Sur. No. 281. Drlg. 560 ft.

J. M. Hardie No. 1 J. M. Garcia, Blk. 27 of Hughes Pet. Co. Mineral subd., Los Ojuelos. Drlg. 696 ft.

A. E. Heniger No. 1 M. Guerra, Juan P. Yzaguirre Porc. No. 56. Drlg. 20 ft.

Smith & Storey No. 1 Houston Oil Co., R. O. Barnsley Sur. No. 24. Cg. 2,036 ft.

Willacy County

Cockburn et al No. 1 Yturria Ld. Livestock Co., San Juan de Carricitos gr. 10¾-in. csg. 1,228 ft.; cg. oil sd. 4,857-67 ft.; D.S.T. rec. 60 ft. oily mud; no W.P.

Zapata County

C. M. Lake et al No. 1 T. Vela, T.&N.O. Sur. No. 5. Cg. 1,112 ft.

EAST TEXAS

(Border Counties)

Harrison County

Ark.-La. Gas Co. No. 1 Jim Davis, James Adams Sur. T.D. 1,250 ft.; S.D.; drlg. wtr. well.

Marion County—Rodessa

Ark.-La. Gas Co. No. 2 Belcher, A. D. S. Coy Sur. Set 5½-in. csg. 6,095 ft.; T. D. 6,123 ft.; comp.; 360 B.P.D.; ¼-in. ck.; T.P. 275 lbs.; C.P. 700 lbs.

Cable Tool Drlg. Co. No. 1 Jackson, John Hanks Sur. Set 9⅝-in. csg. 1,017 ft.; W.O.C.

Gulf Oil Corp. No. 1 C. Ray, John Hanks Sur., NW cor. lse. 9⅝-in. csg. 1,910 ft.; drlg. sh. 4,743 ft.

Harry Hanbury et al No. 2 Davis, Wm. R. Meyers Sur. 5½-in. csg. 5,975 ft.; Young sd. 5,979-87 ft.; T.D. 5,990 ft.

Marion County—Other

Tom Bell No. 1 Moseley, D. Lane Sur. Fsg. for core bbl.

Exploroil Co., Inc., No. 1 Susie Chatten, I. N. Jones Sur. Nac. sd. 1,186-94 ft.; drlg. 1,673 ft.

Van Horn & Clements No. 1 Berk, G. Coore Sur. S.D. 1,172 ft.

Shelby County

Neal & McDaniel No. 1 C. W. McDaniel, Wm. Snider Sur. Drlg. 2,652 ft.; S.G. 1,380-1,840 ft.

Paul Pewitt No. 1 Rushing Est., Mannon Smith Sur. Set 15-in. csg. 60 ft.; W.O.C.

WEST TEXAS WILDCATS

Andrews County

Atlantic and Standard No. 1-B Cowden, Sec. 1, Blk. 14, T.&P. Sur. P.B. 4,180 ft.; tstg.

J. W. Tripplehorn No. 1 M. A. Thornberry, Sec. 2, Blk. 42-A. S.D. 4,480 ft.

Borden County

Continental Oil No. 1 L. S. Monger, Sec. 38, Blk. 31, T.&P. Sur.; 4,000-ft. test. R.U.S.T. 1,864 ft.

Brewster County

H. D. Wilcox No. 2 Kokernot, Sec. 23 Blk. C, J. V. Massey Sur. S.D. 225 ft.

Cochran County

T. G. Shaw, Tr., No. 1 Carrie S. Dean Lge. 94. Swbg. 12 B.F.P.H., 4,981 ft.; swbg. and tstg. 4,982 ft.

Concho County

Clymore Co., Inc., No. 1 Hill, J. Frederick Sur. No. 1694. Drlg. 1,605 ft.

Crane County

Great Western Prod. No. 1-B Univ., Sec. 5, Blk. 30, Univ. Sur. W.O. pmp., 3,-419 ft.; swbd. 127 B.O. in 12 hrs.

Gulf Oil Corp. No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 2,065 ft.

Magnolia Pet. Co. No. 12 W. P. Edwards, Sec. 12, Blk. 23-B, P.S.L. Sur. W.O.C. 3,450 ft.; R.U.S.T.

Magnolia Pet. Co. No. 1-18 Universitv. Sec. 18, Blk. 30, Univ. Sur. D.&A. 3,-363 ft.

Crockett County

Hanson & Anderson No. 1 W. T. Knoelke, Sec. 30, Blk. GG, H.E.&W.T. Sur. Spd. and S.D.

Humble No. 1 Ozona-Barnhart, Sec. 4 Blk. M-N, G.S.&F. Sur. Drlg. 4,875 ft.

Culberson County

Harry Niehaus No. 1 Caldwell, Blk. 109, Sec. 13, P.S.L. Sur. Drlg. 4,606 ft.

Quito Oil Co. No. 1 Cameron Lbr. Co., Sec. 24, Blk. 81, P.S.L. Sur. S.D.R. 945 ft.

Dawson County

Daw-Tex Oil No. 1 J. E. Neely, Sec. 28, Blk. 35, T.&P. Sur. Prep. cmt. 7-in. 4,369 ft.; pulling collapsed 7-in. at 4,-450 ft.; W.O.C. 3,751 ft.; cmt. whipstock; drlg. by whipstock.

Dickens County

Bond D. Jones No. 1 Ford et al, I.&G.N. Sur. Bailing; prep. D.D.

Humble O. & R. Co. No. 1 Matador Ld. & Cattle Co., Sec. 26, Blk. 1, Shock & Arnold Sur.; 6,000-ft. test. Drlg. 6,504 ft.

Ector County

M. B. K. Drlg. Co. No. 2 Gist, Sec. 9, Blk. 42, T.&P. Sur. Drlg. 245 ft.

R. R. Rhodes No. 1 J. L. Johnson, Sec. 43, Blk. 42, T.&P. Sur. Flwg. by hds. 4,250 ft.

Sinclair Prairie No. 1 Fay Holt, Sec. 1, Blk. A, P.S.L. Sur. Drlg. 4,100 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. S.D. 3,-571 ft.

Gaines County

Osage Drlg. Co. No. 1 E. H. Jones, Sec. 20, Blk. 7-A, P.S.L. Sur. M.I.M.

Garza County

Gulf Oil Corp. No. 1 Swanson, Sec. 25, Blk. 2, H.&G.N. Sur. Flwd. 148 B.O. in 9 hrs.; P.B. depth of 7,400 ft.; P.B. 6,821 ft.; tstd. S.W.; P.B. 6,134 ft.; tstg.; drld. out to 6,857 ft.; P.B. 6,296 ft.; swbg and tstg.

Glasscock County

B. A. Duffy No. 1 Carter-Shell, Sec. 8, Blk. 33, T.&P. Sur. Drlg. 1,515 ft.

J. R. Petty No. 1 Joe Blake, Sec. 163, Blk. 29, W.&N.W. Sur. Drlg. 630 ft.

Hockley County

S. W. Richardson No. 1 A. E. Coe Lbr. 53, Lge. 40, Maverick C.S.L. Sur. Cd. several zones of sat.; P.B. 5,143 ft.; tstg. wtr. shutoff; flwd. 12 B.P.H.; P.B. 4,982 ft.; flwd. 15 B.O.P.H.

Texas Co. No. 1-C Mallett, Lbr. 11, Lge. 51, Scurry C.S.L. Sur. R.U.R.

Howard County

A. Delcambre, Jr., No. 1 M. H. O'Daniels, Sec. 39, Blk. 30, T.&P. Sur. Loc.

Dick Graham No. 1 P. Johnson, Sec. 34, Blk. 32, T.&P. Sur. Loc.

Ooley & McQuain No. 1 O'Daniels, Sec. 39, Blk. 30, T.&P. Sur. Loc.

T. G. Shaw, Tr., No. 1-B Wilkerson, Sec. 19, Blk. 34, T.&P. Sur. Drlg. 3,348 ft.

Hudspeth County

Haymon Kroupp Oil & Ld. Co. No. 1 Thaxton, SE¼ Sec. 34, Blk. 74, Twp. 6. Drlg. 5,922 ft.

Haymon Krupp No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.&P. Sur. W.O.C. 5,365 ft.

Irion County

Clyde Crabb No. 1 W. M. Noelke, Tom Green C.S.L. Sur. D.&A. 1,805 ft.

J. W. Ellis No. 1 Sol Mayer, Sec. 240; Blk. 1, T.&P. Sur.; 2,100-ft. test. Lost hole, skidded 10 ft. east; drlg. 1,385 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., Sec. 151, H.E.&W.T. Sur. W.O.C. 4,-450 ft.

Martin County

T. G. Shaw, Tr., No. 1 Wilkerson, Sec. 35-A, B.&C. Sur. S.D. 3,785 ft.

Pecos County

Geo. T. Abell No. 1 W. Williams, Sec. 11, Blk. 3, H.&T.C. Sur. Fsg. 2,010 ft.

Ben Dansby No. 1 L. C. Lessenich, Sec. 45, Blk. 9, H.&G.N. Sur. U.R. 700 ft.; T.D. 857 ft.

Leidecker & Cain No. 1 M. M. Lehn, Sec. 71, Blk. 10, H.&G.N. Sur. R.U.M.

O. E. Schade No. 1 Otis Garrett, Sec. 59½, Blk. 8, H.&G.N. Sur. Prep. rng. csg. 2,119 ft.

Thomason Prod. Co. No. 1 Notions, Sec 1, Blk. 105, W. P. Howard Sur. Prep. D.D. 1,772 ft.

S. Thompson No. 1 Elsinore Cattle Co Sec. 54, Blk. D, G.C.&S.F. Sur. Rig burned; dropped baller in hole; S.D.O 7,342 ft.

J. C. Trees No. 1 fee, Sec. 63, Blk. 3, H.&G.N. Sur. Drlg. 2,160 ft.

Reeves County

Artie Baker No. 1 J. W. Grider, Sec. 31 Blk. 58, P.S.L. Sur. S.D.R. 450 ft.

Schleicher County

Lone Star Gas Co. No. 1 Bert Page, Sec 30, Blk. L, G.H.&S.A. Sur. Drlg. 4,700 ft.

Lone Star Gasoline Co. No. 2 Bert Page Sec. 46, Blk. L, G.H.&S.A. Sur. Drlg. 2,240 ft.

Scurry County

Coffield & Guthrie No. 1 First Natl. Bk. Snyder, Sec. 29, Blk. 97, H.&T.C. Sur Drlg. 2,694 ft.

Tom Green County

Dan Short et al No. 1 J. G. Davidson, NW part of Lovie P. Moore Sur. Loc.

Southern Cross No. 1 Upton & Upton, Sec. 20, Blk. A, A.B.&M. Sur. Drlg. 1,420 ft.

Spinner No. 1 Reed, Mason Ferry Ranch Sur. Prep. D.D. 5,118 ft.

Tom Green Oil Co. No. 1 Schreiber, A. Krending Sur. No. 1663. Drlg. 1,238 ft.

Upton County

White & Wilson No. 1 Webb, Sec. 176 Blk. 1, C.C.S.D.&R.G.N.G. Sur. S.D.; 7-in. 1,020 ft.

Ward County

McQueen & Clevenger No. 1 Geo. Sealy, Sec. 47, Blk. F, G.M.M.B.&A. Sur.

Geo. Wallace No. 1 R. Avery, Sec. 36, Blk. 1, H.&T.C. Sur. Loc.

Winkler County

Standard Oil, Texas, No. 2 Baird, Sec 13, Blk. 3-B, P.S.L. Sur. Drlg. 3,277 ft.

Yoakum County

Honolulu Oil No. 10-695 R. Bennett, Sec. 695. Comp.; 1,857 B.O.P.D.

Osage Drlg. Co. No. 1 Miller, Sec. 898, Gibson Sur. D.P. stk. 5,027 ft.

Shell Pet. Corp. No. 1 J. M. Rutts, Sec. 743, P.B. 5,229 ft.; S.D.

Shell Pet. No. 1 Waples-Platter, Sec. 616. W.O.C. 4,991 ft.

T. & P. Oil Co. No. 1 A. M. Brownfield, Sec. 802. R.U.S.T. 5,050 ft.

TEXAS PANHANDLE

Collingsworth County

C. H. Mee and C. F. Anderson No. 1 V. K. McCaskill, Sec. 18, Blk. 16, H.&G. N. Sur. Drlg. 1,760 ft.

Johnson No. 1 Taylor. S.D. 875 ft.

Deaf Smith County

Uscan No. 1 Farwell. S.D. 5,650 ft.

Donley County

Robinson No. 1 Kuteman, Sec. 88, Blk. 20, H.&G.N. Sur. S.D. 4,406 ft.

Gray County

Products O. & G. Co. No. 1 Mason Davis, Sec. 23, Blk. 23-M, H.&G.N. Sur. Loc.

Triplehorn No. 2 Webb, Sec. 12, Blk. A-9, H.&G.N. Sur. Cl. out 2,665 ft.

Lipscomb County

Darrouzett Oil Co. No. 1 Pugh, 1½ mi. S and 1 mi. W of Darrouzette. S.D.; wtr. 3,401 ft.

Roberts County

Whitlock No. 1 Cunningham. Drlg. 4,-180 ft.

E. C. TEXAS WILDCATS

Cherokee County

C. C. Lanier No. 1 A. T. O'Neal, J. M. Procella Sur., 3 mi. E of Troup. Drlg. 3,000 ft.

Falls County

Marshall Hayes No. 1 M. Murphy, J. M. Sanches Sur., 2 mi. NE of Lott. Pmp. 27 B.O. 22 hrs.; tstg. 1,221 ft.

Freestone County

Jack Frazier No. 1 F. Marberry, 1½ mi. NE of Kirvin. Loc.

A. J. Willis No. 1 W. W. Craig, C. Teas Sur., 8 mi. N of Fairfield. D.&A. 3,-752 ft.

Grayson County

John Grey No. 1 Freedman, W. S. Reeves Sur., 8 mi. NW Denison. R.U.

Jim McMurrey No. 1 Dr. T. J. Long, J. Garland Sur., 2 mi. S of Collinsville; 4,000-ft. test. S.D.O. 3,929 ft.

Ross & Marshall No. 1 J. N. Taylor, W. Moore Sur., 8½ mi. NW of Denison. W.O.C. 836 ft.

Houston County

Leggett & Gossett No. 1 B. F. Gardner J. Thorn Sur., just N of Weldon. Drlg. 1,432 ft.

Kaufman County

Sam Knoerr No. 1 J. B. Hunter, P. Walker Sur., 5 mi. S of Terrell. S.D. 40 ft.

W. G. McGee No. 1 General American Life Ins. Co., John Baker Sur., 6 mi. W of Mabank. Drk.

Leon County

Humble O. & R. Co. No. 1 Ed F. Swift, H. W. Subblett Sur., 4 mi. NW of Navarro Crossing field. Drlg. 3,000 ft.

Limestone County

H. Gant No. 1 Vol De Long, P. Varela Sur., 1½ mi. NW of Thelma. S.D. 2,-983 ft.

H. Richardson No. 1 Banks, B. Davis Sur., 2 mi. NE of Thornton. M.I.M.

S. A. Thompson No. 1 R. L. Nance, J. D. Brown Sur., 5 mi. SE of Thornton. M.I.M.

McLennan County

C. E. Porter No. 1 B. D. Burchett, De la Vega Sur., just SE Waco. S.D. 695 ft.

Navarro County

Guy Sitton No. 1 J. P. Fortson, T. J. Chambers Sur., 4 mi. E of Alma. S.D. 628 ft.

Rains County

McKinley & Hastings No. 1 McTaggert. B. Milder Sur., 1 mi. W of Emory. S.D. 720 ft.

Red River County

Bentley-Sheppard & Stevens No. 1 So. Pine Lbr. Co., G. S. Parks Sur., 17 mi. N of Clarksville. Drlg. 500 ft.

Daniels No. 1 J. J. Gaston, Joseph Guest Sur., 2 mi. S. Detroit. Formerly abd. at 1,109 ft.; drilled deeper and shut down at 1,270 ft.

Smith County

R. W. Rair No. 1 Clark, J. Lewis Sur., 2 mi. W Mt. Sylvan. Drlg. 2,320 ft.

I. H. Thomason No. 1 J. W. Bartlett, R. H. Stewart Sur., ¼ mi. SE of Jamestown. S.D. 2,050 ft.

Trinity County

C. D. Davis No. 1 J. D. Gibson, A. Donavan Sur., 4 mi. NE of Trinity. Gas blowout 148 ft.; S.D. 2,627 ft.

Upshur County

R. E. L. Johnson No. 1 Lizzie Parker John B. Gay Sur. S.D. 4,004 ft.

Van Zandt County

F. A. Richardson No. 1-A B. C. Dodd, T. W. Hutchinson Sur., 2 mi. S of Grand Saline. S.D. 1,925 ft.

Wood County

Geo. Strake No. 1 Farrier, J. Walker Sur., 4 mi. E of Yantis. Drlg. 4,500 ft.

NORTH TEXAS WILDCATS

Archer County

British American O. P. Co. No. 1 T. B. Wilson, Sec. 12, H.&T.C. Sur. Matrl.

E. P. Griffin No. 1 W. T. Waggoner, Sec. 3, H.&T.C. Sur. O.S. 4,393-4,407 ft.; 6⅝-in. 4,388 ft.; W.O.C.

Phillips Pet Co. No. 1 J. B. Miller, Sec 20, A.T.N.C.L. Sur. T.D. 4,006 ft.; O. W.D.D.; S.O. to D.D. to 4,500 ft.; C.O. 3,800 ft.

L. Sikes No. 1 Miller, Wm. Shaw Sur. A-378. Fsg. 5,790 ft.

Baylor County

British Am. O. P. Co. No. 1 J. F. Cone Sec. 220, T.&N.O. Sur. Drlg. 3,550 ft.

Clay County

L. T. Burns No. 1 Browning, Sec. 94, Belcher subd.; 5,000-ft. test. 6⅝-in. 4,437 ft.; S.S.O. 4,435-45 ft.; W.O.C.

H. S. Moss No. 1 T. J. Parmley, Sec. 6s, M.G.S.L. Sur. A-308. Drlg. 1,792 ft.

Hardeman County

N. Gilbert No. 1 R. Weakley, Sec. 85, H. &T.C. Sur., 4,000-ft. test. Loc.

Cooke County

Means & Howard No. 1 W. T. Lynch, A. Edmiston Sur. A-353. Matl. for 5,000-ft. test. R.U.R.

Needham & Richards No. 1 Peary, T. Toby Sur. A-1047. Drlg. 611 ft.

Jack County

Pitzer & West No. 1 F. Warren, Sec. 2784, T.E.&L. Sur. 6⅝ 4,365 ft.; L. 4,365-4,418 ft.; tstg. est. 150 bbls.

Montague County

Benton & Holmes No. 1 J. Bowers, Sec. 55, M.E.P.&P. Sur. S.S.O. 2,887-95 ft.; 6⅝-in. 2,883 ft.; tstg. est. 500 to 600 B.P.D.

Staley Oil Co. No. 1 Nunnely, M. S. Ussery Sur. A-824. Spdg.

Wichita County

F. S. Freeland No. 1 J. D. Cooper, H. Hastie A-92; 4,000-ft. test. Spd. and S.D.

Wise County

H. Jackson No. 1 F. Neeley, Blk. 29, Matagorda Co. Sch. Ld. Spd. and S.D.

H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Lds. Pits.

Wilbarger County

Lawson & Leavell No. 16 W. T. Waggoner A, Sec. 109, H.&T.C. Sur., Blk. 14; 3,500-ft. test. Drlg. 285 ft.

Young County

H. M. Leidecker No. 1 J. M. Nall, Sec. 1997, T.E.&L. Sur. Drlg. 2,530 ft.

Long & Lupton No. 1 A. Crouch, I.&G. N. Sur. A-1460. 6⅝-in. 3,865 ft.; sat. L. 3,940-44 ft.; treating with acid; test wtr.; S.D.O.

WEST CENTRAL TEXAS DISTRICT

Brown County

E. C. Norman No. 1 Stella Rice, Chas Messenger Sur. No. 127. P.B. 985 ft.; tstg.

A. D. Bruce No. 1 L. J. Mauldin, Sec 15, H.&T.C. Sur. S.D.R. 480 ft.

Callahan County

Dobbs Oil Co. No. 1 Finley, Sec. 75 Bayland Orphans Home Ld. Skidded over to start new hole.

J. C. Jackson and Doug. Tomlingson, Jr No. 1 T. J. Thompson, Sec. 30, B.B.B &C. Sur. S.D. 1,886 ft.

Pet. Prod. No. 1 J. M. Morrisset, SW¼ Sec. 91, Blk. 13, T.&P. Sur., 5 mi. NW of Clyde. Loc.

Westgate-Greenland Oil Co. No. 1 Chas. Yost, SE¼ Sec. 23, Blk. 8, S.P.R.R. Sur., on Callahan-Taylor County line. Loc.

Comanche County

Plains Prod. Co. No. 1 Runkle, Sec. 47, D.&D.A. Sur. D.&A. 501 ft.

Erath County

Wayne Chandler No. 1 Chandler, J. W. Moore Sur., Abst. 571, S.D.R. 4,151 ft.

Collard No. 1 W. L. Payton, H. Pierson Sur. No. 1, Abst. 1105. S.D. 185 ft.

Hamilton County

Wallace & Vickers No. 1 C. C. Lund, J P. Bailey Sur. 51. S.D.O. 2,640 ft.

Jones County

R. B. Carrol No. 1 G. Herndon, Goliad C.S.L. Sur. C.O. after acd. 2,677 ft.

Ed. L. Evans No. 1 B. J. Crier, Sec. 8, B.A.L. Sur. Drlg. 1,715 ft.

G. M. Gillispie No. 1, Sec. 54, O.A.L. Sur. Rng. csg. 1,700 ft.

S. C. Herring No. 1 Guitar Est., western part of F. Sieverman Sur. No. 12. Loc.

Nolan County

Chas. E. Peddicord No. 1 Tipton, Sec 43, Blk. 19, T.&P. Sur. Drlg. 3,360 ft.

Palo Pinto County

W. K. Gordon No. 1 J. W. Conway, Ruidosa I.R.R. Sur. Drlg. 2,430 ft.

Parker County

Brown-Gardner Bros. No. 1 Gilbert, T.& P. Sur., Abst. 1958. S.D. 2,200 ft.

Rocky Mountain Runs

Production estimates for week ended March 11:

WYOMING

	Bbls.
Salt Creek	15,060
Big Muddy	1,260
Badger Basin	180
Cody dome	70
Cole Creek	110
Dallas Derby	350
Dewey dome	10
Dutton Creek	40
Elk Basin	580
Frannie	590
Garland	1,850
Grass Creek	1,890
Hidden dome	90
Hudson	230
La Barge	800
Lance Creek	12,320
Lost Soldier	1,780
Mahoney	140
Medicine Bow	2,220
Mule Creek	200
Midway	20
Oregon Basin	1,890
Osage	750
Quealy dome	760
Rex Lake	10
Rock River	3,130
Spindletop	40
Poison Spider	270
Teapot	10
Warm Springs	120
Wertz	1,390
Total Wyoming	48,160

MONTANA

Border	150
Cat Creek	580
Cut Bank	8,230
Dry Creek	1,270
Kevin-Sunburst	3,490
Lake Basin	20
Pondera	440
Total Montana	14,180

COLORADO

Florence	150
Fort Collins and Wellington	290
Wilson Creek	350
Iles dome	2,060
Moffat	210
Orchard	20
Rangely	20
Tow Creek	150
Price	470
Total Colorado	3,720

NEW MEXICO

Cooper	4,530
Eaves	870
West Eunice	110
Eunice	24,540
Hardy	3,280
Hobbs	14,320
Jal	940
Langlie	5,210
Lynch	550
Lynn	860
Mattix	3,850
Monument	25,290
North Lynch	40
Penrose	6,060
Rhoades	140
Skaggs	100
Skelly	2,110
South Eunice	3,480
South Lovington	160
Vacuum	8,330
Artesia-Maljamar	8,790
Getty	100
Hogback	200
Rattlesnake	580
Table Mesa	70
Total New Mexico	114,510
Total Rocky Mountain region	180,570

EXPLORATION

(Continued from Page 24)

of the hydrocarbon curves. It isn't simply a case of making mountains out of mole hills, but rather the mole hills may actually be mountains. The fault easily could be perspective.

Much more should be known than an analysis of the samples and the interpretation of the laboratory results. Some of the factors involved are:

1. The relative amount of organic matter in the soil: Soils range in color from nearly pure white to black, and there is a direct relationship between the absorptive power of the soil and the amount of organic matter present.

2. Character of the soil: Clays will adsorb much more gas than sandy soils. The surface area of the particles composing a clay is far greater than the surface area of a similar volume of sand. Furthermore, clays deposited under the same general conditions as sands will contain a higher percentage of carbonaceous material.

3. Topography: The rate of erosion in an area is largely dependent upon the irregularities of the surface as well as the general elevation of the region. It is expected that the hydrocarbon concentration would be much less on the higher areas than on the lower. There may be an abnormal concentration in the lower areas due to the accumulation of the soils from the uplands.

4. Soil covering: The rate of erosion is dependent upon the vegetation. Wooded areas tend to keep the soils in place while plowed areas foster rapid erosion.

5. Surface geology particularly of those beds immediately underlying the surface: Thick beds of porous sandstone will aid the concentration locally, while thick beds of shale will hinder it.

6. Climate of the region: Great temperature variations and particularly high temperatures will aid the escape of the hydrocarbons while areas which have low average temperatures will retain them. Regions of high humidity will tend to have higher concentrations than arid regions. In the humid regions there is a much thicker vegetal covering and greater amounts of carbonaceous matter in the soil.

7. Methods of collecting samples and analysis: The quantity of material found in many of the samples is measured in parts per million by weight, and even so little as parts per billion. A new laboratory technique had to be developed to measure quantities so small. Minor variations in samples may make large changes in values. The method of collection and transportation is another very important item to be considered.

8. Contamination of the soil: The soil may be contaminated by earlier drilling, pipe line leaks, spray from uncontrolled wells. Very precarious results may be obtained from an area where considerable drilling has already been completed.

Too much emphasis cannot be placed upon the interpretation of the hydrocarbon curves. They must be properly deciphered to be of value in the location of wells. The failures resulting from the misinterpretation of some of the early geological and geophysical results are still too vivid to be reiterated. It must be remembered that each new development is only an added aid, and not one that is self-sufficient. Even the seismograph can hardly point to a discovery where it alone was responsible. There must first have been accumulated a considerable knowledge of the structural and stratigraphic geology of the region, both surface and subsurface, before geophysical studies were made.

Soil analysis survey marks a very important step in the advancement of the oil industry, yet it must be kept in mind that it is still in its experimental stage. It may be a year or two before it will have passed the acid test. In the meantime numerous comparisons should be made between soil survey charts and known geological structures. Well-defined seismograph structures which have not yet been drilled, should be checked by the soil survey and then proved or disproved by the bit. This sort of investigation will take a considerable time but will pay out in the long run. A large amount of data will be accumulated and from it will come the proper methods for interpretation of the hydrocarbon values detected in the soil.

Mud, Mud, Mud!

How much mud in your field? Have you been able to move? Keystone *Model 81 full crawlers* operate in spite of mud.
With powerful engines and 7 speed transmission, you are able to *go places*, and get the footage.
Yes, Keystones more than pay their way.

Write for full data.

Keystone Driller Co.
BEAVER FALLS, PA.
Joplin, Mo. Waukegan, Ill. Arlington, N. J.

Personal Paragraphs

JAMES G. BLAINE, St. Louis, Mo., assistant general counsel for the Katy railway and former St. Louis municipal judge, spoke at the annual Tulsa Safety Council dinner in place of JUDGE KING S. WILLIAMSON, Dallas, Tex., Judge Williamson was reported ill with pneumonia.

W. A. DELANEY, oil operator of North Louisiana, is chairman of the board of the newly formed Louisiana-Nevada Transit Co., which plans to construct a gas line from the Cotton Valley field to the Ideal Cement Co. plant at Okay, Ark. T. R. JONES, contractor, who will construct the line, has been named president; and R. O. MATTHEWS, an official of the cement company, is vice president.

E. B. LYMAN, of the public relations department of the Standard Oil Co. of New Jersey, was a recent visitor in the Mid-Continent.

COLIN REITH, Bahrein Petroleum Co. production engineer, has been transferred from the New York office to Bahrein Island. Mr. and Mrs. Reith are now en route to the Persian Gulf.

PAUL PITZER, of Pitzer & West, operators in West Central Texas, is recovering from a broken leg suffered last week when he was struck by an automobile in Breckenridge, his home city.

IRA C. JARED, JR., formerly scout and land man for the Sun Oil Co. in the North Louisiana office at Shreveport, La., has resigned to become head land man for the Delta Drilling Co., of Shreveport.

DONALD C. BARTON, research geologist for the Humble Oil & Refining Co., Houston, Tex., and president of the American Association of Petroleum Geologists, is leaving Houston this week for Oklahoma City to direct work in prepartion for the association's annual meeting opening there March 22.

V. E. COTTINGHAM, who recently resigned as director of production for the Railroad Commission of Texas, has opened offices in the Petroleum Building at Midland, Tex., in his new post as chairman of the North Basin pool engineering committee. Members of the engineering staff are TOMMY POST, engineer in Pampa, and MAX D. HENDRICK, with the commission in Kilgore.

M. E. BROCK, Gulf Oil Corp., Houston, Tex., has been appointed chairman of the American Petroleum Institute's Division of Production 1939 committee on disposal of production wastes. D. V. STROOP, Institute staff engineer, is secretary. Members of the committee are H. K. ARNOLD, Humble Oil & Refining Co., Houston; D. B. DOW, Indian Territory Illuminating Oil Co., Bartlesville, Okla.; E. M. FREEMAN, the Texas Co., Houston; FRITZ KARGE, Union Oil Co. of California, Los Angeles; R. S. KNAPPEN, Gulf Oil Corp., Tulsa; GLENVER McCONNELL, Shell Petroleum Corp., Tulsa; A. S. RITCHIE, McPherson Drilling Co., Wichita, Kans.; JOHN A. RITTER, Sun Oil Co., Dallas, Tex.; J. SAMUELSON, General Petroleum Corp. of California, Los Angeles; G. O. SUMAN, Tide Water Associated Oil Co., Oil Center, Calif.; WILLIAM F. TAYLOR, Carter Oil Co., Tulsa.

H. A. MEYER resigned March 15 as managing director of the Kansas Independent Oil and Gas Association, an office which he accepted 15 months ago primarily to set up the organization and guide it through its formative period. The association is now a going concern, with a statewide membership. E. B. SHAWVER, Wichita operator, is president.

R. OGARRIO, vice president of the Texas Co. and chairman of the producing committee, headed a party of the company's executives who made an inspection of its Gulf Coast and Illinois properties, following the annual conference of production officials in Houston. Others in the party were R. F. BAKER, assistant to Mr. Ogarrio and chief geologist; F. C. SEALEY, manager foreign production department, and A. C. HUNTER, assistant manager production department, all of New York; J. T. WOOD, JR., manager production department, the Texas Co. of California, Los Angeles; L. E. BARROWS, Houston, manager production department and vice chairman of the producing committee; E. R. FILLEY, A. R. WILSON, and V. L. PORTER, Houston, assistants to manager; H. A. STEWART, Denver, manager Rocky Mountain division; H. N. PARDEE, Tulsa, manager Oklahoma-Kansas division; R. C. STEWART, Shreveport, manager Louisiana - Arkansas - East Texas division; H. S. COLE, JR., Fort Worth, manager North and West Texas division, and J. A. BERMINGHAM, manager South Texas division.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

"Too much crude!" is the cry. Oklahoma is producing 208,000 bbls.; Kansas, 7,000 bbls.; Texas and Louisiana, 104,000 bbls., a total of 319,000 bbls. a day in the Mid-Continent and Gulf Coast. Buyers are issuing warnings.

A. M. Hennage, 60, superintendent of the Enterprise Transit Co., dies at Bradford, Pa.

Merchants Oil & Gas Co., of Oklahoma City, with a capital of $15,000, is drilling a wildcat in Section 5-11-2e, in the hope of making Oklahoma City an oil town. The contract calls for a 3,000-foot hole.

20 YEARS AGO

George Kenney, director and former sales manager of Tide Water Oil Co., dies in Augusta, Ga.

The American Petroleum Institute was formed in New York on March 14 by leading oil men of America. The membership is restricted to residents of the United States, Canada and Mexico who are engaged in the oil business or allied industries.

The deepest well in California is drilling at 5,065 feet and threatens to soon "run out of hole" as the lower casing string is 4½ inches in diameter.

10 YEARS AGO

Rapidly growing production of crude in the United States (now at 2,631,000 bbls. per day) causes the American Petroleum Institute to recommend a general curtailment program.

Prairie Oil & Gas Co. buys the Thomas B. Slick producing properties and 3,000,000 bbls. of stored oil, and a half interest in Mr. Slick's nonproductive properties, paying around $30,000,000. Mr. Slick intends to retire because of ill health.

CHARLES C. STANLEY, counsel of the Texas Co. of California, with offices in Los Angeles, recently completed 15 years' uninterrupted service with the company.

JOHN F. WEINZIERL, consulting geologist of Houston, Tex., addressed the Shreveport Geological Society last week on "Geophysics in Relation to Geology."

O. D. DONNELL and J. C. DONNELL, of the Ohio Oil Co., Findlay, Ohio, have returned East after several weeks in southern California on a pleasure and business trip.

LON H. CRON, Cron & Gracey, drilling contractors, Houston, Tex., has been spending much time in Cuba, where his firm is drilling a wildcat test for the Shell Petroleum Corp.

O. J. KIRKATEG, Bedford, Iowa, member of the state senate, wants to spur exploratory work in his state, so he has introduced a bill offering $25,000 reward for the first person who strikes oil. Bedford right now is a center of farm leasing activity by persons who believe oil may be found in southwestern Iowa.

L. P. ST. CLAIR, chairman of the board of directors; REESE H. TAYLOR, president; R. D. MATTHEWS, vice president; W. L. STEWART, JR., vice president; PAUL M. GREGG, vice president and counsel; V. H. KELLY, vice president; A. C. RUBEL, vice president, and A. C. GALBRAITH, vice president, of the Union Oil Co. of California, were reelected last week.

JACK DANCIGER, Danciger Oil & Refining Co., is back at his desk in Fort Worth, Tex., after spending a vacation of several months in California.

EARL M. FITZ, clerk in the operating service department of Shell Oil Co. at the head office in San Francisco, has been appointed engineer of the same department.

DAVID P. HAMILTON, president of the Root Petroleum Co., is back at his desk in Shreveport, La., following a South American cruise on the S.S. Argentina. He docked in New York on March 6, and spent several days there before returning to Shreveport.

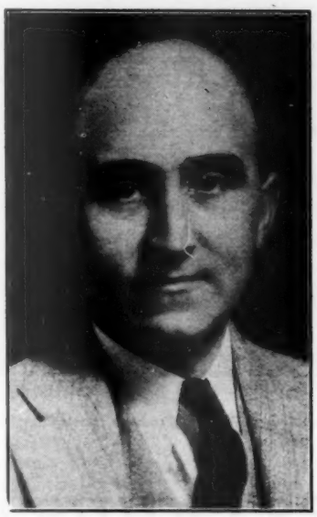
DAN MORAN, president of the Continental Oil Co., flew from his home in Houston, Tex., to New York last week to attend the annual meeting of stockholders. On his way he stopped at Fort Worth, Tex., to visit officials of the company's district headquarters for West Texas and New Mexico.

FRED M. MANNING, president, and C. D. MARTIN, secretary-treasurer of Manning & Martin, Inc., rotary drilling contractors of Denver, Colo., and J. E. MANNING of Lusk, Wyo., flew into Cut Bank, Mont., by plane recently to look over conditions in that field. The company is considering moving in light rotary equipment.

GEORGE S. HEYER, president; THOMAS W. PEW, vice president; J. W. TREVITT, secretary and treasurer; WALLACE C. THOMPSON, assistant secretary-treasurer and chief geologist, and SAM T. CUTBIRTH, assistant secretary, were reelected officers of the General Crude Oil Co. at the annual meeting in Houston, Tex., last week.

Law, Banking, Now Oil

R. Elmo Thompson, vice president and director of the First National Bank & Trust Co., Tulsa, has been made executive vice president of the Sunray Oil Co. and the Sunray Oil Corp., thus extending into oil a career hitherto devoted to law and banking. Mr. Thompson, who was born in Nashville, Tenn., in 1895, graduated from Vanderbilt University with a B.S. in 1917 and immediately enlisted as a private for war service. When the war ended he was a captain of artillery, in charge of a battalion awaiting orders for oversea duty. Returning to the university, he received the degree of LL.B. in 1920 and began practice of law in Tulsa. Soon afterward he became associate counsel in the legal department of the Exchange National Bank. In 1926 he was elected a vice president in charge of the correspondent bank department, in this capacity acquiring a wide acquaintanceship among bankers and oil men. He continued this connection with the National Bank of Tulsa, which succeeded the Exchange National Bank, until 1935, when he was made vice president and director of the First National Bank & Trust Co. In that post he has given special attention to oil financing. He will continue to serve as a director.



R. ELMO THOMPSON

Mr. Thompson is a director of the Tulsa Chamber of Commerce and for the past two years has been a director of the United States Chamber of Commerce. He is president of the Oklahoma Business Council and active in civic work.

GEORGE GRINSHAW, of the Sid Richardson Petroleum Co., has been transferred from Levelland, Tex., to Bunkie, La., as production foreman in the Sparta-Wilcox area of Central Louisiana.

G. A. MABRY, director of public relations for the Humble Oil & Refining Co., has been selected director general of the team organization committee for a campaign to raise $1,375,000 for the Y.M.C.A. in Houston, Tex.

FRITZ W. MARTIN, Shreveport drilling contractor and Louisiana president of the National Aeronautical Association, headed a delegation of Shreveport fliers to the annual Southwest Aviation Conference in Fort Worth, Tex., last week.

O. C. BAILEY, chairman of the Arkansas Oil and Gas Commission, in an address at El Dorado last week declared the new conservation law recently enacted in the state did away with the need or excuse for federal control of the oil industry.

CHARLES H. MILLER, of the Union Oil Co. of California, formerly assistant foreman of the natural gas department at Kettleman Hills, has been transferred to Santa Fe Springs as safety superintendent, succeeding V. E. FARMER, who recently resigned.

J. ALTON SIMMS, senior engineer with the Arkansas Oil and Gas Commission, has been transferred from the main offices in El Dorado to the newly opened Magnolia office, where he will be in charge as resident engineer, supervising operations in the Atlanta, Magnolia, Village and Buckner fields. LLOYD JORDAN, senior gas engineer, will be in the new office during the latter half of each month.

SHIFTS: F. C. HALL, purchasing agent Henderson Co., from Amarillo, Tex., to San Antonio, Tex.; G. B. BENNETT, engineer Sun Oil Co., from Bay City, Tex., to Alta Loma, Tex.; W. C. ADAMS, geologist Deep Rock Oil Corp., from Mount Vernon, Ill., to Nashville, Ill.; WAYNE E. KUHN, manager Texas Co., from Jackson Heights, N. Y., to Scarsdale, N. Y.; G. C. ROCKWOOD, producer, from Centralia, Ill., to Springfield, Ill.; A. J. HARDENDORF, president Federal Construction Co., from Denver, Colo., to Houston, Tex.; CARL HEARN, superintendent Unity Petroleum Corp., from Kalispell, Mont., to Creston, Mont.; R. H. ADAMS, producer, from Iola, Kans., to Tulsa; J. T. DAWSON, geologist, from Dallas, Tex., to Corpus Christi, Tex.; W. F. DENBOW, superintendent Ohio Oil Co., from Houston, Tex., to Bay City, Tex.; M. A. TIBBETTS, geologist, from Mount Vernon, Ill., to Harrisburg, Ill.; R. H. HALL, safety engineer Phillips Petroleum Co., from Kansas City, Kans., to Denver, Colo.; F. G. BOK, engineer Shell Oil Co., from Bakersfield, Calif., to Los Angeles, Calif.; WILLIAM L. GOMORY, engineer, from The Hague, Holland, to New York; G. A. MONTGOMERY, from Helsingfors, Finland, to Buenos Aires, Argentina, South America.

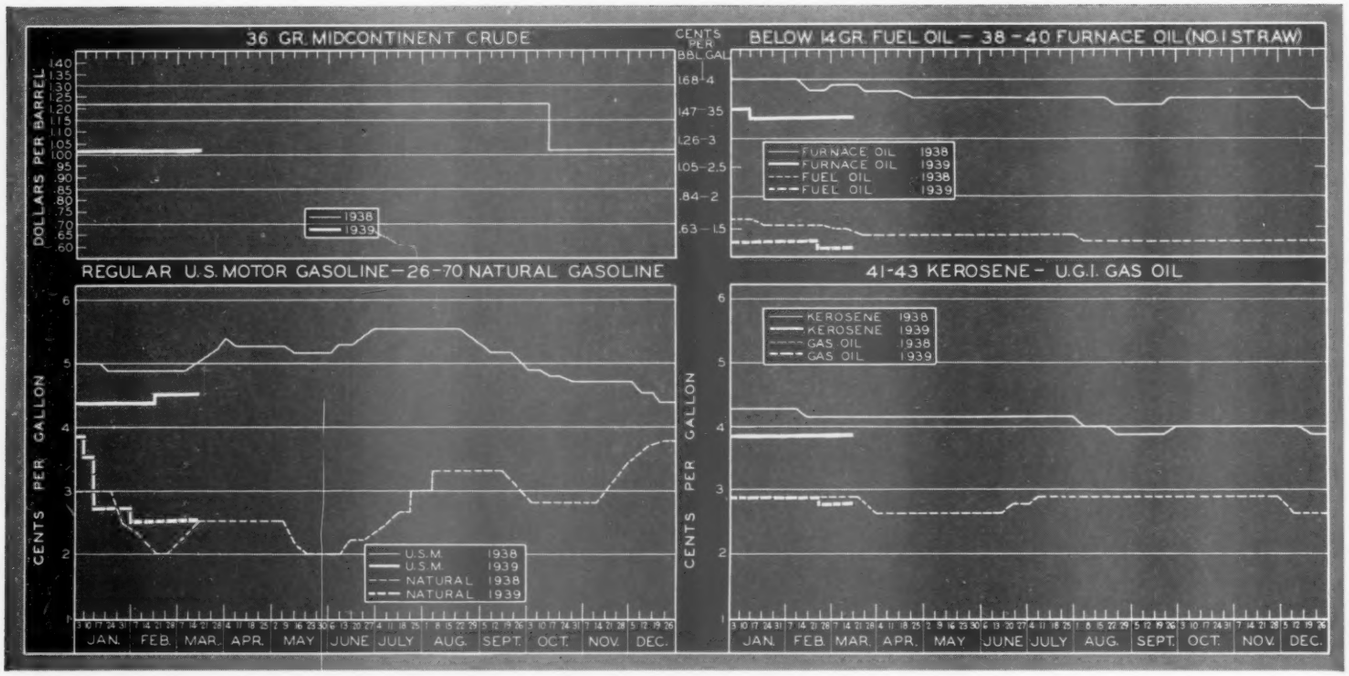
CLIFFORD E. SAVAGE, chief scout of the eastern division for the Carter Oil Co., has been transferred back from Mattoon, Ill., to Tulsa to take charge of the Oklahoma-Kansas territory.

G. O. SHEFSTEAD, superintendent of the Texas Co. refinery in Craig, Colo., gave a banquet recently for employes of the company in Craig in honor of J. B. CRABTREE, who has passed his twentieth year of service with the company, and in recognition of their record made in 1938 in maintaining safety. Speakers included DR. M. B. BAILEY, company physician at Craig, C. F. NICKLOS of the producing department, and I. P. BECKETT of the sales department.

KENNETH B. NOWELS has resigned as chief engineer and geologist in charge of exploration work in Texas for the Forest Oil Corp., Bradford, Pa., to conduct a private consulting business, with headquarters in Abilene, Tex. Mr. Nowels, following his graduation from Colorado College in 1917, was employed in geological investigations in the Rocky Mountain and Mid-Continent areas until 1923, when he entered the service of the Bureau of Mines. He left that agency in 1930 to join Forest.

COL. CARL B. ESTES, Texas publisher, widely known throughout the Southwest because of his writings on oil and his active interest in the industry, was taken to a hospital in Wilkes-Barre, Pa., last week following a stomach hemorrhage. His condition was reported "fair and not critical." Colonel Estes had gone to Wilkes-Barre because of his friendship with GOVERNOR ARTHUR H. JAMES, whose mother-in-law had died.

AMON CARTER, Fort Worth, Tex., independent producer and publisher of the Fort Worth Star-Telegram, was honor guest at a dinner last Thursday evening at the Fort Worth Club, given in recognition of 19 years as president of that organization. A life-size painting of Mr. Carter by SEYMOUR M. STONE, New York artist, was unveiled. PAUL WHITEMAN directed his orchestra and acted as toastmaster. The presentation address was given by BEN E. KEITH, who said the club had tried years ago to get a painting of Mr. Carter, but "couldn't get him to stand still long enough." Others who spoke were JUDGE MARVIN H. BROWN, associate justice of the second Court of Civil Appeals, WILLIAM MONNIG, and MAYOR HARRELL.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline Continues Gains in Group 3 Market, but Furnace Oils Weaken

By T. F. SMILEY

There was no interruption this week in the rising strength of gasoline in the Group 3 market. The worried heating oils were beginning to stumble. Natural gasoline, which had been ticketed for a drop several weeks ago, was still holding fairly well. Wax was the most robust product in the list. Some refiners thought there was a little improvement in the lubricants, but close searching was necessary to find it.

Contributing to a definitely better feeling among Group 3 refiners was the announcement by the Standard Oil Co. of Indiana that it would advance by a half-cent a gallon all subnormal prices to dealers and tank-wagon consumers on gasoline, kerosene, tractor fuel and furnace oil in Minnesota, Iowa, Missouri (except St. Louis and St. Louis County), Kansas, North Dakota, and South Dakota. Indiana's action enables other refiners to raise their prices in the same areas.

Less Uneasiness About Stocks

There appears to be slightly less uneasiness over the country's rising gasoline stocks, which already are much beyond the point which oil economists said should be the top. The more optimistic market analysts make much of the fact that although general business was on the downgrade last spring, the states comprising the Group 3 marketing territory, with three minor exceptions, scored notable gains in gasoline consumption in 1938 over 1937. This year, they point out in their appraisals of the 1939 outlook, business is headed upward.

The gains in gasoline consumption made in 1938 over the preceding year were as follows, according to the American Petroleum Institute: South Dakota 13.8 per cent, Iowa 6.5, North Dakota 4.8, Minnesota 3.9, Arkansas 3.6, Illinois 3.2, Oklahoma 3, Colorado 2.7, Missouri 2.2, Nebraska .6, Wisconsin .3. Three states showed losses: Michigan 5.1 per cent, Indiana .3, Kansas .2. Market analysts who are disposed to poohpooh the fears aroused in some quarters by the huge additions to stocks say there is every likelihood that 1939 will record much larger gains over 1938. The 1938 gain over 1937 throughout the nation, however, was only eight-tenths of 1 per cent.

Refined Oil Market Barometer

All oil products except the light fuels steady in most of the territory east of California, with definite strength in gasoline and wax. Refiners apparently expecting an extraordinary summer demand to absorb excessive stocks of gasoline. Heating oils weak, with urgent offerings plentiful. Naturals maintaining firmness. Kerosene and tractor fuels gaining. Heavy fuels improving.

MID-CONTINENT. Gasoline firmer. Heating oils soft. Wax extremely strong. Naturals steady.

EAST COAST. Heavy fuel improved. Heating oils weak. Gasoline unchanged. Wax firm.

GULF COAST. Gasoline slightly stronger. Fuel oils improved. Better tone in market.

PENNSYLVANIA. Lubricating oils vigorous. Wax up. Fuel oil steadier.

CALIFORNIA. Fuel oil weaker. Gasoline, kerosene, Diesel and gas oil soft.

CHICAGO. Gasoline firm. Furnace oils irregular. Kerosene and tractor fuels steadier.

Heating oil prices sagged under the weight of burdensome inventories. Range oil and No. 1 prime white, at the top of the list, suffered the most, as the heaviest accumulations have been in the high-gravity distillates. The lower-grade fuels were soft, but prices were holding fairly well. It is not believed the heating oil stocks will present such a serious problem as was feared a few weeks ago, as large quantities of the light-gravity material have been absorbed in the tractor fuel trade.

Naturals Still Holding

Natural gasoline added to its reputation as a good stayer. Although the market was slightly easier, no really distress stocks were reported. There was a steady demand from jobbers and blenders, with some export activity to help out. The oversea business has been part cargoes. Gulf Coast refiners have been ordering in small quantities. The total business has been sufficient to keep stocks from becoming a threat, and except on the part of small manufacturers there are few offerings at ruling quotations. Most of the natural which consumer buyers are not taking is being stored by large manufacturers, who say they are likely to need it next fall, when current output will not be enough to meet requirements.

Advances in prices of Pennsylvania crude, with corresponding increases in quotations for lubricating oils, have had a stiffening effect on the Mid-Continent lubricating oil market.

Wax was up and in the best position it has held for more than a year. In the manufacture of wax refiners have adopted a policy which they agree should have been applied to other products. They have kept their output geared to demand.

Heavy Fuels Strong in East, but Motor Fuel Market Unsteady

By H. STANLEY NORMAN

NEW YORK, Mar. 14.—Strength of the heavy fuel oil market on the Gulf Coast and in the North Atlantic district increased last week, partially offsetting weakness which developed in kerosene and other light fuel oils. Except for reductions in Buffalo, N. Y., and Boston, Mass., the northern motor fuel market was largely unchanged last week.

Cylinder oils joined neutrals and other Pennsylvania lubricating stocks in movement to higher levels and several suppliers tacked another fractional advance to wax prices, indicating that the improved export demand present during the first two months of the year is continuing. A general reduction of a quarter cent in the refinery tankcar quotation for kerosene was announced March 6 by Standard Oil Co. of New Jersey, recognizing the price of 4½ cents that had been posted by numerous suppliers for several days. The tankcar reduction was followed on March 7 by a cut of a cent in the New Jersey tank-wagon price, bringing the market down to 7 cents at Atlantic City and Newark.

The consumer tankcar and dealer tank-wagon motor fuel prices quoted by Socony-Vacuum Oil Co., Inc., in Buffalo were reduced March 6. A reduction of a quarter cent per gallon was posted on consumer tankcar gasoline. Dealer tank-wagon prices fell 1.7 cents. The motor fuel reductions in Buffalo were the result of a local situation in which an independent distributor made a general price slash when a reported sale of his facilities had been denied and after an inquiry had been proposed among politicians.

The dealer tank-wagon motor fuel price in Syracuse was elevated a half cent to 14 cents on March 6 by Socony-Vacuum, and a cut of three-tenths of a cent to the same class of trade in Boston was made on the same date. The dealer tank-wagon price in Boston currently is 12 cents, while the consumer tankcar quotation of 10¼ cents remains unchanged from the preceding week.

The Boston retail motor fuel market is in the midst of another period of unsettlement and numerous stations are reported offering 7 gallons for 90 cents, including state and federal taxes. There were no other important changes reported in the northeastern Atlantic district retail prices. The consumer demand for industrial grades of fuel oil is reported at a higher level, probably reflecting seasonal activity to some extent as well as reports from Washington that the administration is making a serious effort to remove the causes of fear among business institutions. There has been no change in the Bunker C fuel oil price structure in the North Atlantic Coast section, but cargo prices are working higher on the Gulf Coast. Prospective purchasers of Bunker C quality fuel oil report their inability to find cargo quantities at figures below 67½ cents per barrel, and some suppliers are asking 70 cents. The current industrial fuel oil price structure is in contrast to a low of 65 to 66 and a top of 67½ cents per barrel prevailing at the start of March. Bunker C fuel oil to the marine trade is offered at important Atlantic ports at 95 cents, the price which has prevailed for several months.

Nearness of spring has curtailed trade in light burning oils to a hand-to-mouth basis and prices have skidded into new low territory for the year. Barge deliveries of No. 2 fuel oil are obtainable in the New York Harbor district at 3⅝ cents. Reports are that some suppliers are willing to do business at 3½ cents. In the Gulf Coast cargo market No. 2 fuel oil is available at 3¼ cents on an unrestricted basis and some refiners are willing to do business at fractions below that level on a firm offer.

Gulf Coast quotations on kerosene range from 3⅝ to 4 cents per gallon, but a majority of suppliers are bracketed at 3¾ cents for 41-43, water-white specification material. Current tanker rates for clean tonnage in the range of 13½ to 14 cents per barrel permit shading of tankcar and tank-wagon prices on the consumer end without necessarily exerting pressure on the primary market. In keeping with seasonal demand, however, the Gulf Coast kerosene market is inclining toward softness, and price disturbances are reported from several local areas in the Middle Atlantic district as well as the more northern points.

Bright cylinder stocks and neutral oils were reported well maintained at recently advanced levels in the western Pennsylvania refinery district. At least one grade of dark cylinder stock presented a strong appearance last week. Most suppliers marked up 650 steam-refined cylinder oil a half cent to 1½ cents per gallon, elevating the range of most quotations to 10-11 cents. Dark cylinder oil meeting 630-flash specifications was also marked up a half cent by several suppliers.

Export demand for wax has been holding to the levels established in January and February without deviation. Suppliers in many instances are sold ahead of current production for two or three months. In addition, the domestic demand has been running ahead of 1938. Prices have been marked up another point on most grades. Crude scale wax of 122-124 a.m.p. is quoted at 2.55 cents per pound in Pennsylvania refineries while the range for 124-126 white scale grade is from 2.55 to 2.6 cents. Both grades are quoted at New York and New Orleans at 2.55 to 2.6 cents to the export trade. Wax export business is running from 75 to 80 per cent ahead of the level for the first quarter in 1938 and slightly ahead of the volume recorded in 1937.

Interest in other export petroleum products has been gaining during the past two or three weeks. French buyers have been particularly active in the motor fuel market for March and April loading on the Gulf Coast. Two cargoes of motor fuel were reported sold on the Gulf Coast to French buyers during the past few days. One cargo specified approximately 50,000 bbls. of 65-octane, 390-endpoint gasoline for late March lifting at 4⅝ cents per gallon. The other cargo sold to French interests called for approximately 30,000 bbls. of 68-octane gasoline, 390-endpoint at 4⅞ cents. The other cargo involved in recent transactions was for United Kingdom destination and consisted of approximately 55,000 bbls. of 65-octane gasoline, 390-endpoint at 4½ cents.

French and British buyers were watching the Gulf Coast market carefully, anxious to place additional business at the low of the trough and before prices move forward on the crest of early spring buying for domestic consumption. Movement of motor fuel in coastwise traffic is particularly heavy at the present. Most of the suppliers in the Pennsylvania, New Jersey, New York, and New England districts are preparing for concentrated domestic demand this year primarily because of the New York World's Fair, which is scheduled to open April 30. For the reason that motorists from all

(Continued on Page 122)

A. P. I. Weekly Refinery Statistics

Week Ending March 11, 1939

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	510,000	20,560,000	8,163,000
Appalachian	85.9	105,000	3,339,000	735,000
Indiana, Illinois, and Kentucky	89.5	458,000	14,838,000	5,405,000
Oklahoma, Kansas, and Missouri	81.6	232,000	8,069,000	4,037,000
Inland Texas	50.3	108,000	1,960,000	1,795,000
Texas Gulf	89.5	795,000	11,217,000	6,939,000
Louisiana Gulf	97.3	120,000	2,544,000	1,374,000
North Louisiana and Arkansas	55.0	38,000	517,000	789,000
Rocky Mountains	54.2	36,000	1,854,000	727,000
California	90.9	453,000	15,928,000	97,712,000
Total reported	85.8	2,855,000	80,826,000	127,676,000
Estimated unreported	.....	350,000	5,140,000	2,970,000
*Estimated total	.....	3,205,000	85,966,000	130,646,000
*Estimated total previous week	.....	3,230,000	85,379,000	131,930,000
*March 12, 1938	.....	3,093,000	92,294,000	121,439,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending February 25, 1939	271,758,000 barrels
Week ending February 18, 1939	271,252,000 barrels
Week ending February 26, 1938	305,167,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of March 14, 1939

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank-wag.	Dlr.	Inc. tax	Kero. tank-wag.
Chicago, Ill.	15.1	12.1	4.0	10.0
Decatur	15.1	12.6	4.0	10.0
Joliet	15.1	12.6	4.0	10.0
Peoria	15.1	13.1	4.0	10.0
Quincy	14.9	12.9	4.0	8.7
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	8.9
Minneapolis	16.0	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.0	5.0	10.3
Milwaukee	14.9	13.4	5.0	10.2
Detroit, Mich.	13.1	11.6	4.0	7.1
Grand Rapids	14.0	12.5	4.0	9.7
Saginaw	15.8	14.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†10.0
South Bend	17.1	15.6	5.0	†9.0
Fargo, N. D.	16.7	15.2	4.0	11.6
Minot	18.0	16.5	4.0	12.9
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	11.9	4.0	7.5
St. Louis*	14.2	12.7	4.0	8.0
St. Joseph	14.4	11.2	4.0	9.3
Wichita, Kans.	13.9	10.6	4.0	7.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective February 15, 1939, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gallons, 9 cents; 100-149 gallons, 8 cents; 150 gallons and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gallons, 8.25 cents; 150-399 gallons, 7.25 cents; 400 gallons and over, 6.75 cents. Stanolex furnace oil, 1-149 gallons, 8.25 cents; 150-399 gallons, 7.25 cents; 400 gallons and over, 6.75 cents. Stanolex Grade A, 1-399 gallons, 5 cents; 400 gallons and over, 4 cents. Stanolex Grade B, 1-799 gallons, 4.75 cents; 800 gallons and over, 3.75 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Tank-wag. con'r.	Dlr. divided	Inc. tax	Kero. tank-wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank-wag.	Net dlr.	Inc. tax	Kero. tank-wag.
Atlanta, Ga.	19.5	16.5	7.0	8.5
Augusta	19.5	16.5	7.0	9.0
Macon	19.0	16.0	7.0	10.0
Savannah	19.0	16.0	7.0	8.0
Birmingham, Ala.	20.0	17.0	8.0	8.5
Mobile	20.5	17.5	9.0	8.5
Montgomery	21.0	19.0	9.0	10.5
Jackson, Miss.	17.5	14.5	7.0	9.5
Vicksburg	19.0	16.0	7.0	9.0
Jacksonville, Fla.	19.0	16.0	8.0	8.0
Miami	19.0	16.0	8.0	8.0
Pensacola	20.0	17.0	9.0	8.0
Tampa	19.0	16.0	8.0	8.0
Lexington, Ky.	19.0	16.0	6.0	10.0
Covington	17.5	14.5	6.0	9.5
Louisville	17.5	14.5	6.0	9.0
Paducah	18.5	15.5	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallon discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons. tank-car	Dlr. tank-wag.	Inc. tax	Kero. tank-wag.
Atl'tic City, N. J.	10.9	12.7	4.0	7.0
Newark	10.9	12.7	4.0	7.0
Annapolis, Md.	12.85	14.35	5.0	9.5
Baltimore	12.25	13.75	5.0	8.0
Cumberland	13.65	16.15	5.0	10.0
Wash'gton, D. C.	10.50	12.0	3.0	9.5
Danville, Va.	14.45	16.95	6.0	12.9
Norfolk	13.25	15.75	6.0	11.5
Petersburg	13.55	16.05	6.0	11.7
Richmond	13.55	16.05	6.0	8.7
Roanoke	14.75	17.25	6.0	11.0
Charles'n, W. Va.	14.05	16.55	6.0	12.6
Parkersburg	13.35	14.85	6.0	11.2
Wheeling	14.35	15.75	6.0	12.2
Charlotte, N. C.	15.65	18.15	7.0	12.1
Hickory	16.15	18.65	7.0	12.5
Mt. Airy	15.95	18.45	7.0	12.3
Raleigh	15.25	17.75	7.0	11.6
Salisbury	15.75	18.25	7.0	12.2
Charleston, S. C.	14.25	16.75	7.0	10.6
Columbia	15.25	17.75	7.0	11.6
Spartanburg	15.95	18.45	7.0	12.4

Price basis to Essolene undivided dealers: Dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gallons or more, consumer tank-wagon price. Single deliveries of less than 50 gallons, 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank-wag.	Serv. sta.	Inc. tax	Kero. tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Pennsylvania, Delaware, and Part of New England

ATLANTIC REFINING CO.

	Gasoline Cons. tank-car	Dlr. tank-wag.	Inc. tax	Kero. tank-wag.
Philadelphia, Pa.	12.0	13.0	5.0	10.0
Pittsburgh	13.0	15.0	5.0	10.5
Allentown	12.75	14.25	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton	13.0	14.5	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	13.5	5.0	10.5
Wilmington	...	12.5	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons. tank-car	Dlr. tank-wag.	Inc. tax	Kero. tank-wag.
Albany	11.5	13.8	5.0	8.0
*Met. N. Y.:				
Manhat., Bronx	11.5	12.9	5.0	8.0
Staten Island	11.5	12.9	5.0	8.0
Queens, Br'klyn	11.5	12.9	5.0	8.0
Buffalo	12.0	11.8	5.0	7.5
Rochester	12.5	13.5	5.0	7.5
Syracuse	12.0	14.0	5.0	8.5
Boston, Mass.	10.25	12.0	4.0	7.0
Portland, Me.	11.5	13.5	5.0	7.5
Manchester, N. H.	12.1	14.1	5.0	8.0
Burlington, Vt.	12.0	14.2	5.0	9.0
Springfield, Mass.	10.75	12.8	4.0	7.5
Worcester	10.75	12.8	4.0	7.5
Hartford, Conn.	10.75	12.8	4.0	6.5
New Haven	10.75	11.5	4.0	6.0
Providence, R. I.	10.25	12.3	4.0	7.0

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Dealer tax	Inc. tax	Kero. tank-wag.
Denver, Colo.	15.5	5.0	11.5
Grand Junction	16.0	5.0	15.0
Pueblo	13.0	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	15.0	5.0	13.0
Billings, Mont.	18.0	6.0	13.0
Butte	19.5	6.0	15.5
Great Falls	18.0	6.0	15.5
Helena	19.0	6.0	15.5
Salt Lake City, Utah	16.0	5.0	16.0
Boise, Idaho	19.0	6.0	18.0
Twin Falls	19.5	6.0	18.0
Albuquerque, N. M.	16.0	*6.5	10.0

*Includes city tax of .5 cent.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons. tank-car	Dlr. tank-wag.	Inc. tax	Kero. tank-wag.
New Orleans, La.	16.75	19.25	*10.0	†11.0
Baton Rouge	14.75	17.25	8.0	‡10.5
Alexandria	14.75	17.25	8.0	‡12.5
Lafayette	15.00	17.50	8.0	‡12.5
Lake Charles	14.75	17.25	8.0	‡12.5
Shreveport	13.50	16.00	8.0	‡11.0
Knoxville, Tenn.	18.00	20.50	8.0	14.5
Memphis	16.00	18.50	8.0	12.5
Chattanooga	17.50	19.00	8.0	14.0
Nashville	17.00	19.50	8.0	12.0
Bristol	18.25	15.25	8.0	14.5

Essolene at dealer price less .5 cent per gallon to undivided dealers.

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gallons, consumer tankcar plus 2 cents per gallon; 50 to 199 gallons, consumer tankcar plus 1 cent per gallon; 200 gallons and over, consumer tankcar plus .5 cent per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank-wag.	Dlr.	Inc. tax	Kero. tank-wag.
Omaha	17.5	14.5	6.0	10.3
McCook	17.5	15.5	6.0	10.0
Norfolk	17.9	14.9	6.0	10.7
North Platte	18.3	15.4	6.0	11.0
Scottsbluff	17.0	14.9	6.0	11.2

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Kero. tank-wag.
Texarkana, Ark.	12.0	5.0	8.0
Fort Smith	13.25	5.0	7.5
Little Rock	16.75	7.5	8.0
Muskogee, Okla.	13.0	5.0	7.0
Oklahoma City	10.5	5.0	6.0
Tulsa	10.0	5.0	6.0

Texas

	Gasoline Tank-wag.	Serv. sta.	Inc. tax	Kero. tank-wag.
Dallas, Tex.	11.0	15.0	5.0	7.0
Fort Worth	11.0	15.0	5.0	8.0
Houston	13.0	17.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	23.5	10.0	17.5
St. John, N. B.	23.5	10.0	17.5
Montreal, Que.	20.0	6.0	14.5
Toronto, Ont.	21.0	6.0	15.5
Hamilton, Ont.	21.0	6.0	15.5
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. (Kentucky) made the following changes in gasoline prices (both consumer tank-wagon and net dealer): In Mobile, advanced it .5 cent February 22, reduced it 1 cent February 25, advanced it 2.5 cents March 8; in Macon, advanced it 1 cent March 1; in Savannah, advanced it 1.5 cents March 1; in Atlanta, advanced it 1 cent March 1; in Jacksonville, reduced it 1 cent March 1; in Miami, advanced it .5 cent March 1; in Pensacola, reduced it 1 cent March 1.

Standard Oil Co. of New Jersey March 7 reduced tank-wagon kerosene 1 cent in Atlantic City and Newark; March 9, reduced tank-wagon kerosene .5 cent in Baltimore.

Socony-Vacuum Oil Co. March 9 reduced dealer tank-wagon gasoline .7 cent in Buffalo.

Imperial Oil, Ltd., March 1 reduced tank-wagon gasoline in Brandon .1 cent.

Effective Thursday, March 16, Stand-

(Continued on Page 122)

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of March 14, 1939

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane (regular)	.04½	.04⅝
60-62 400 grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane (regular)	.04½	.04⅝
64-66 375	.04	.04¼
68-70 360	.05	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04⅜
70-72 octane (regular)	.04½	.04⅝
60-62 400	.03½	.03⅝
64-66 375	.04	.04¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04⅛	.04¼
63-66 octane	.04⅜	.04½
67-69 octane	.04⅝	.04¾
70-72 octane (regular)	.05	.05⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04
67-69 octane	.05	.05⅛

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03¾	.03⅞
63-66 octane	.04	.04⅛
67-69 octane	.04¼	.04⅜
70-72 octane	.04½	.04⅝
60-62 400 grades:		
62 octane and below	.03¾	.03⅞
63-66 octane	.04	.04⅛
67-69 octane	.04¼	.04⅜
70-72 octane	.04½	.04⅝
64-66 375	.04	.04¼
68-70 360	.05	.05¼

PENNSYLVANIA (Inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.04¼	.04¾
65 octane		.06¼
68-70 octane		.06½

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06	.08
58-60 400, 65 oct. and higher	.07½	.09

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06	.06¼
Philadelphia	.06	.06¼
Baltimore	.06	.06¼
Charleston, S. C.	.06½	.06¾

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane		.04¼
60-64.9	.04½	.04⅝
65 octane and higher		.04⅝
68-70	.04⅞	.05⅛

Naphtha

PENNSYLVANIA (Inland refineries)—

52-56 450 (blending)	.04¼	.04½

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02½
Grade 18-55		.03

NORTH TEXAS—

Grade 26-70	.02⅝	.02½
Grade 18-55	.02¾	.02⅞

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02¾

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03¾	.03⅞
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.04	.04¼
46-48 gr., 210-230 i.b.p., 480-max., e.p.	.04⅜	.04⅝

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅞	.04
42-44	.04⅛	.04¼

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅜

ARKANSAS (Ark. and N. La. del.)—

41-43		.04½

PENNSYLVANIA (inland refineries)—

45	.05	.05⅛
46	.05⅛	.05¼
47	.05¼	.05⅜

CHICAGO (Based on Group 3)—

41-43	.03⅞	.04⅛
42-44	.04⅛	.04⅜

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05¾

NEW YORK (Bayonne, N. J.)—

41-43		.04½

***GULF COAST (domestic)—**

41-43	.03⅞	.04⅛

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅝	.03¾
No. 1 prime white, 38-42	.03⅜	.03½
No. 1 straw, 38-40		.03⅜
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3 zero to 15, 28-32	.03	.03¼
No. 3, 15 and above, 28-32	.02¾	.02⅞

NORTH TEXAS—

No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03⅜	.03⅝

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅝	.03¾
No. 1 prime white, 38-40	.03½	.03⅝
No. 1 straw, 38-40	.03⅜	.03½
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3, zero to 15, 28-32	.03	.03⅛
No. 3, 15 and above, 28-32	.02¾	.02⅞

NEW YORK (Bayonne, N. J.)—

*No. 1	.04½	.04⅝
*No. 2		.04
*No. 4		.04

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low pourpoint, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low pourpoint, 18-22	.70	.75
Below 14 fuel oil, industrial	.45	.55

NORTH TEXAS—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low pourpoint, 24-28	1.00	1.10
No. 5, low pourpoint, 18-22	.70	.75
Below 14 fuel oil, industrial	.45	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low pourpoint, 24-28	.100	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low pourpoint, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pourpoint, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.04½	.04⅝

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.35
24 plus Diesel, per bbl.	1.00	1.30
24 plus Diesel (bunkers)	1.15	1.50
12-16 (bunkers at tidewater)	.75	.90
10-16 (cargo lots)	.60	.80
12-17 (tankcars)	.50	.80
10-17 (high sulfur)	.45	.70
San Joaquin Valley:		
10-18 (tankcars)	.50	.80
24 plus Diesel, per bbl.	1.15	1.40
San Francisco:		
24 plus Diesel, per bbl.	1.40	1.45
24 plus Diesel (bunkers)	1.45	1.55
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel	.03⅜	.03⅝
43-47 Diesel	.03½	.03⅝
48-52 Diesel	.03½	.03⅝
53-57 Diesel	.03⅝	.03¾
Bunker C (bulk cargoes)	.67½	.70
Bunker C (bunkers)		.75

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04
28-30 Diesel (lighterage 6¼c per bbl.)		1.65
28-30 Diesel (tankcars)	.04¼	.04½
Bunker C (to ocean-going ships in N. Y. Harbor)		.95
Industrial fuel (tankcars)		.03¼

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14¼	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.12½
600 dark green (untreated)	.04½	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pourpoint	.17½	.19
15 pourpoint	.16½	.18
25 pourpoint	.15	.16
Steam refined:		
600	.08½	.10
650	.10½	.11
600 flash	.11	.12
630 flash	.13½	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-6½		.13
400-3½		.14
100-2½ paraffin oil 15-20 pourpoint:		.06
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.12½

GULF COAST—

Pale oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.90¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pourpoint	.17½	.18
10 pourpoint	.17	.17½
15 pourpoint	.15½	.16
25 pourpoint	.14	.14½
200 vis. at 70° F., 3 color:		
Zero pourpoint	.18½	.19½
10 pourpoint	.18	.19
15 pourpoint	.17½	.18
25 pourpoint	.16	.16½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.0260	.0265

PENNSYLVANIA (Inland refineries)—

122-124 (a.m.p.) w.c. scale	.0255	.0260
124-126 (a.m.p.) w.c. scale		.0260

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0350
125-127 (a.m.p.) wax		.0360
128-130 (a.m.p.) wax		.0375
130-132 (a.m.p.) wax		.0435
133-135 (a.m.p.) wax		.0465
135-137 (a.m.p.) wax		.0490
124-126 (a.m.p.) w.s.	.0255	.0260
124-126 (a.m.p.) y.s.	.0250	.0255
Petrolatum in barrels, carload lots:		
Dark green	.02	.02⅛
Amber	.02⅜	.02½
Extra amber	.02⅝	.02¾
Lily white	.05½	.05¼
Snow white	.06⅛	.06¼
Cream	.04¼	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¼	.04⅜
60-62 400	.04¼	.04⅜
61-63 390	.04⅜	.04⅝
64-66 375	.04½	.04⅝

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.04½	.04¾
65-69 octane	.04¾	.05
Above 69 octane	.05	.05½

KEROSENE

GULF COAST—

41-43 prime white	.03⅞	.04⅛
41-43 water white	.03⅞	.04⅛

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder stocks:		
600 Warren E	.15	.15½
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.17	.17½
600 flash, S.R.	.17	.17½
630 flash, S.R.	.20½	.21
Bright stocks:		
8 color	.16¼	.16½

NEUTRAL OIL

200-3 color	.21½	.22
150-3 color	.19½	.20

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude scale:		
124-126 w.s.	.0255	.0260
124-126 y.s.	.0255	.0260

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)* $1.10
Van, Tex. (Oct. 11, 1938)* ..... .93
Talco, Tex. (Oct. 11, 1938)* ..... .55
Rodessa, Tex. .....
See North Louisiana gravity schedule
Cass and Panola counties, Texas .....
See gravity schedule
Altus and Tipton† ..... See note below
Cayuga, Tex. (Fed. 15, 1939) ..... .68
Clay Creek, Tex. ..... .85

*Humble Oil & Refining Co. †Gulf Refining Co. Pure Oil Co.'s Van price, 93 cents, effective Oct. 13, 1938.

Altus and Tipton, Okla., starting at below 25 degrees at 71 cents, 2-cent spread to 40 degrees and above at $1.03. East Texas price met by all buyers posting prices. Talco price adopted by Talco Pipe Line on October 11. Cayuga posted by Pan American Pipe Line Co. Clay Creek posted by Sun Oil Co.

Southwest Texas

Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)* ..... $ .96
Pettus (Oct. 11, 1938)* 1.29
Flour Bluff (Dec. 3, 1938)* 1.23
Darst Creek (Oct. 12, 1938)† ..... .96
Darst Creek and Bruner (Oct. 13, 1938)‡ ..... .96
Luling (Oct. 12, 1938)† ..... .87
Lytton Springs (Oct. 12, 1938)† ..... .99
Mirando (Oct. 12, 1938)† .....
Government Wells (Oct. 13, 1938) .....
See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20 gravity, 77 cents, 3-cent spread to 24-24.9 at 89 cents.

Gulf Coast

Conroe, Tex. (Oct. 11, 1938)* $1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)† ..... See note below
Gibson, La. (Oct. 11, 1938)† 1.04
Garden Island, La. (Oct. 12, 1938‡ 1.24
Lafitte, La. (Oct. 12, 1938)‡ 1.04
Cleveland, Tex. (Oct. 12, 1938)¶ 1.14
Hardin, Tex. (Oct. 12, 1938)¶ 1.02
Tepetate, La. (Oct. 11, 1938§ 1.03
Villa Platte, La. (Oct. 11, 1938)§ 1.03
Abbeville, La. (Jan. 1, 1939)§ .....
See note below
Bosco, La. (Dec. 3, 1938)‖ ..... .93
Creole, La. (Oct. 13, 1938)‖ ..... .96
Gueydan, Sweet Lake, and Louise, La. (Oct. 13, 1938)† ..... See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 13, 1938)** .....
Long Lake, Tex. (Oct. 13, 1938** 1.08
Segno and Wing (Oct. 13, 1938)** .....
See note below
Livingston (Oct. 11, 1938)† 1.10
Gibson, La. (Oct. 11, 1938)† 1.04

*Humble Oil & Refining Co. †Shell Petroleum Corp. ‡Texas Co. §Continental Oil Co. ¶Magnolia Petroleum Co. ‖Pure Oil Co. **Gulf Refining Co.

Black Bayou, etc., starts at below 20 degrees at 79 cents; 20-20.9, 81 cents; 21-21.9, 83 cents, then a 3-cent spread to 26-26.9 degrees, 98 cents, and 27 degrees and over $1. Abbeville starts at below 36 degrees, 92 cents, 2-cent spread to 40 degrees and over at $1.02. Gueydan, etc., starts at below 20 degrees, 79 cents, 3-cent spread to 26-26.9 degrees at $1, and 2-cent spread to 40 degrees and over at $1.28. Segno and Wing take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 18 gravity, 76 cents, 2-cent spread to 20-20.9 at 82 cents; then a 3-cent spread to 26-26.9 at $1; then a 2-cent spread to 34 degrees and over at $1.16.

North Louisiana and Arkansas

Smackover, Ark. (Oct. 5, 1938)* ... $ .73
Buckner, Magnolia, and Village, Ark. (Oct. 5, 1938)* .... See note below
Schuler, Jones sand ..... See note below
Tullos and Urania ..... .89
Cotton Valley, La. (distillate) (Dec. 23, 1938)* 1.20
Lisbon, La. (Sept. 19, 1938) .....
See note below

*Smackover posted by Standard Oil Co. of Louisiana, October 5, 1938; by Magnolia Petroleum Co., October 12; by Gulf Refining Co., October 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

Schuler Jones sand schedule starts at below 25 degrees, 66 cents, with 2-cent spread to 40 and over at 98 cents; by Lion Oil Refining Co. on October 5, 1938; Schuler light Morgan sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolle; by Lion Oil Refining Co., October 5; Buckner, Magnolia, and Village schedules posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co. on October 5; quote same prices as for Schuler Jones sand crude.

Middle Western States

OHIO OIL CO.
(Effective October 13, 1938)

Lima, Ohio ..... $ .90
Illinois old fields 1.05
Illinois basin 1.15
Princeton, Ind. 1.05
Western Kentucky 1.10
Greendale, Porter, and Crystal, Mich. (Jan. 6, 1939)* ..... .92½
Buckeye, Bentley, Edenville, Beaverton, Mich. (Jan. 6, 1939)* ..... .90
Freeman-Redding, Mich, (Jan. 6, 1939)* ..... .82
West Branch and Arenac, Mich. (Dec. 13, 1938)* ..... .70
Allegan (Jan. 6) ..... .78
Bloomingdale (Dec. 19) ..... .84
Muskegon 1.00
Sherman, Mich. (Dec. 13, 1938)‡ ... .82
Eastern Kentucky:
Big Sandy River† 1.12
Kentucky River† 1.20

*Simrall Corp. †Ashland Refining Co. ‡Pure Transportation Co.

Rocky Mountain States

Dry Creek, Wyo. (Oct. 11, 1938)* $ .92
Elk Basin, Wyo. (Oct. 11, 1938)*† .90
Grass Creek, light, Wyo. (Oct. 11, 1938)*† ..... .90
Grass Creek, heavy (Oct. 11, 1938)† .40
Lance Creek, Wyo. Oct. 11, 1938)* .77
Rock Creek, Wyo. (Oct. 11, 1938)* . 1.00
Iles, light, Colo. (Oct. 11, 1938)† .. .98
Iles, heavy, Colo. (Oct. 11, 1938)† .. .92
Dutton Creek, Wyo. (Oct. 11, 1938)† .....
See note below
Frannie, light, Wyo. (Oct. 11, 1938)† .55
Frannie, heavy, Wyo. (Oct. 11, 1938)† ..... .42
Hamilton dome, Wyo. Oct. 11, 1938)† ..... .35
Midway, Wyo. (Oct. 11, 1938)† .....
See note below
Salt Creek Tensleep crude, Wyo. (Oct. 11, 1938)† ..... .646
Salt Creek (Oct. 11, 1938) See note below
Canon City, Colo. (Oct. 11, 1938)‡ . .90
Florence, Colo. (Oct. 11, 1938)‡ .. .90
Cat Creek, Mont. (Oct. 11, 1938)‡ .. 1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡ .. .98
Lance Creek, Wyo. (Oct. 11, 1938)‡ .77
Lea County, N. M. .....
See West Texas gravity schedule‡
Artesia, Jackson and Maljamar .....
See gravity table‡
Fort Collins and Wellington, Colo. .....
See gravity table‡
Eddy County, N. M. (October 11, 1938)¶ ..... .77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. ¶Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crude start at below 29 degrees, 86 cents, 2 cents spread to 40 and over at $1.10. Salt Creek crude excepting Tensleep takes Standard Oil Co. of Indiana, Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective October 11, discontinued posting prices in Greybull-Torchlight, Wyo., and Hogback and Hospah, N. M.

Eastern States

SOUTH PENN OIL CO.
(Effective March 6, 1939)

Pennsylvania Grade Oil in National Transit Lines (Bradford field) $2.00
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.65
Pennsylvania Grade Oil in Eureka Pipe Line lines 1.59
Pennsylvania Grade Oil in Buckeye Pipe Line lines 1.55
Corning Grade Oil in Buckeye Pipe Line Co. line (Jan. 24) 1.02

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO.
(Effective March 6, 1939)

Bradford, Pa. $2.00
Allegany, N. Y. 2.00

PENNZOIL CO.
(Effective March 6, 1939)

Group A $1.95
Group B 1.94
Group C 1.93
Group D 1.92
Group E 1.90

PURE OIL CO.
(Effective March 6, 1939)

West Virginia $1.59

West Texas

See gravity table.
Pecos County (Oct. 11, 1938)* .... $ .78
Pecos shallow (Oct. 11, 1938)† .... .65

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Canada

Ontario (Oct. 25, 1938)*

Petrolia $1.90
Oil Springs 1.97

TURNER VALLEY
(January 5, 1938, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65 gravity and higher ... $2.14
Discolored naphtha and crude oil, 40-40.9 gravity 1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity 1.62
These prices f.o.b. producers' field tankage.

*Imperial Oil, Ltd.

Crude Oil Price Changes

Bell Oil & Gas Co., effective March 13, advanced its crude prices 4 cents per barrel on all grades in North Texas and the Red Riverbed area. This makes the Bell prices for 28 gravity, 75 cents, with 2 cents added for each degree upward, bringing its 41-degree price to $1.01 per barrel. The North Texas price for 28-gravity crude posted by most companies is 79 cents and the Oklahoma price 86 cents, with 2 cents added for each degree upward to 40 and over.

Atlas Oil Corp., effective March 13, increased its prices paid for crude oil in the Shreveport, La., field 3 cents per barrel or to 8 cents.

Caddo Crude Oil Purchasing Co., effective March 11, increased its crude oil price in the Shreveport pool 5 cents per barrel, or to $1 per barrel.

Effective on April 1 Dixie Pipe Line Co. will pay 80 cents per barrel for Magnolia field crude in Columbia County, Arkansas.

Tank-Wagon Changes

(Continued from Page 120)

ard Oil Co. of Indiana advanced by one-half cent a gallon all subnormal prices to dealers and all subnormal tank-wagon prices to consumers on all grades of motor gasoline, kerosene, tractor fuel and furnace oil in Minnesota, Iowa, Missouri (except St. Louis and St. Louis County), Kansas, North Dakota and South Dakota. Where prices were less than a half cent below the normal, the advance was whatever was necessary to put them on a normal basis.

New York Market

(Continued from Page 119)

sections of the country will converge on New York during May, June, July, August and September, the demand will be particularly heavy in the northeastern Atlantic district this summer. Therefore, the concentration of abnormally high motor fuel stocks on the Atlantic Coast has been under way for several weeks and will continue until near the end of the summer season.

Nearness of the heavy motoring season is probably the only thing holding the gasoline market together at the moment. Stocks continue to rise, although the rate of increase has tapered off.

Crude Prices by Gravities

	1 Oklahoma	2 Oklahoma and Kansas	3 North and Central Texas	4 Louisiana and Arkansas	5 East Central Texas	6 Gray County, Texas	7 Hutchinson and Carson counties, Texas	8 Raccoon Bend, Satsuma and Tomball, Texas	9 West Texas and Lea County, N. M.	10 Fort Collins and Wellington, Colo.	11 Anahuac and Dickinson, Mirando, Duval, Texas.	12 Refugio, Texas	13 Gulf Coast Texas	14 Cass and Panola counties, Texas	15 Beaumont and West Beaumont, Texas	16 Lockport, Iowa, Cameron Meadows, Louisiana	17 Artesia, Jackson and Maljamar, N. M.	18 Iowa, Louisiana
Below 18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$.74	.....	$.75
18-18.9	.....	.....	.....	.....	.....	.....	.....	.....	$.53	.....	$.74	$.79	$.79	.....	.....	.76	.....	.77
19-19.9	.....	.....	.....	.....	.....	.....	.....	.....	.53	.....	.74	.79	.79	.....	$.79	.78	.....	.79
20-20.9	$.60	$.70	.....	.....	.....	.....	.....	.....	.55	.....	.77	.82	.82	.....	.82	.80	.....	.81
21-21.9	.63	.72	.....	.....	.....	.....	.....	.....	.57	.....	.80	.85	.85	.....	.85	.82	.....	.83
22-22.9	.66	.74	.....	.....	.....	.....	.....	$.95	.59	.....	.83	.88	.88	.....	.88	.85	.....	.86
23-23.9	.69	.76	.....	.....	$.78	.....	.....	.97	.61	.....	.86	.91	.91	.....	.91	.88	.....	.89
24-24.9	.72	.78	$.71	.....	.80	.....	.....	.99	.63	.....	.89	.94	.94	.....	.94	.91	.....	.92
Below 25	.....	.....	.....	$.73	.....	.....	.....	.....	.....	.....	.....	.....	.....	$.73	.....	.....	.....	.....
25-25.9	.75	.80	.73	.75	.82	.....	.....	1.01	.65	.....	.92	.97	.97	.75	.97	.94	.....	.95
26-26.9	.78	.82	.75	.77	.84	.....	.....	1.03	.67	.....	.95	1.00	1.00	.77	1.00	.97	.....	.98
27-27.9	.81	.84	.77	.79	.86	.....	.....	1.05	.69	.....	.97	1.02	1.02	.79	1.02	.99	.....	1.00
28-28.9	.84	.86	.79	.81	.88	$.72	$.67	1.07	.71	$.81	.99	1.04	1.04	.81	1.04	1.01	$.61	1.02
29-29.9	.87	.88	.81	.83	.90	.74	.69	1.09	.73	.83	1.01	1.06	1.06	.83	1.06	1.03	.63	1.04
Below 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30-30.9	.90	.90	.83	.85	.92	.76	.71	1.11	.75	.85	1.03	1.08	1.08	.85	1.08	1.05	.65	1.06
31-31.9	.92	.92	.85	.87	.94	.78	.73	1.13	.77	.87	1.05	1.10	1.10	.87	1.10	1.07	.67	1.08
32-32.9	.94	.94	.87	.89	.96	.80	.75	1.15	.79	.89	1.07	1.12	1.12	.89	1.12	1.09	.69	1.10
33-33.9	.96	.96	.89	.91	.98	.82	.77	1.17	.81	.91	1.09	1.14	1.14	.91	1.14	1.11	.71	1.12
34-34.9	.98	.98	.91	.93	1.00	.84	.79	1.19	.83	.93	1.11	1.16	1.16	.93	1.16	1.13	.73	1.14
Below 35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35-35.9	1.00	1.00	.93	.95	1.02	.86	.81	1.21	.85	.95	1.13	1.18	1.18	.95	1.18	.....	.75	.....
36-36.9	1.02	1.02	.95	.97	1.04	.88	.83	1.23	.87	.97	1.15	1.20	1.20	.97	1.20	.....	.77	.....
37-37.9	1.04	1.04	.97	.99	1.06	.90	.85	1.25	.89	.99	1.17	1.22	1.22	.99	1.22	.....	.79	.....
38-38.9	1.06	1.06	.99	1.01	1.08	.92	.87	1.27	.91	1.01	1.19	1.24	1.24	1.01	1.24	.....	.81	.....
39-39.9	1.08	1.08	1.01	1.03	1.10	.94	.89	1.29	.93	1.03	1.21	1.26	1.26	1.03	1.26	.....	.83	.....
40 and over	1.10	1.10	1.03	1.05	1.12	.96	.91	1.31	.95	1.05	1.23	1.28	1.28	1.05	1.28	.....	.85	.....

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1939 High	1939 Low	Week ending Mar. 11 High	Week ending Mar. 11 Low	Week ending Mar. 11 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1937	Com. sh. earn. 1936	1938 High	1938 Low	1937 High	1937 Low
69½	60¼	67	62¼	66⅝	Amerada Corp.	788,675	N.P.	50cQ	1-31-39	$2.00	$3.04	$2.52	78	55	111⅞	51½
23	20⅞	22⅜	21¾	22¼	Atlantic Refining	2,663,999	$25	25cQ	3-15-39	1.00	3.51	2.59	27⅜	17¾	37	18
21½	15⅜	19¾	18½	19⅜	Barber Asphalt Co.	396,223	$10	75c	12-16-37	..	1.91	1.14	23¾	12⅛	43⅜	10⅛
19½	14¾	17⅝	16¾	17⅜	Barnsdall Oil Co.	2,250,344	$5	25cQ	2-1-39	1.00	.85	1.01	21⅜	10⅛	35¼	10
9¼	8	8⅞	8½	8⅝	Consolidated Oil Corp.	13,915,167	N.P.	20cQ	2-15-39	.80	1.48	1.18	10¾	7	17⅞	7
31½	26	29½	26¼	29¼	Continental Oil of Delaware	4,682,583	$5	25cQ	3-31-39	‖1.00	2.98	2.05	35¾	21¼	49	24
8⅜	6½	7¾	7¼	7¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	.94	—.03	9⅜	5	17⅝	4¾
16½	13⅝	16½	15¼	16¼	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-38	.60	2.86	2.57	22⅝	12¼	35⅜	14
14⅞	12⅝	14⅛	13⅝	13⅞	Mission Corporation	1,382,945	$10	$1	6-29-38	1.00	1.31	.48	17¾	10⅝	34	15
15½	11⅝	13½	12⅝	12¾	National Supply	1,155,170	$10	$2 pf.‡	12-22-37	....	4.90	2.02	23	12½	41⅜	17⅝
10¼	8⅝	9¼	8⅞	9¼	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	.20	1.30	.70	14⅞	8⅞	22⅞	8
11⅞	10⅜	11⅞	10⅞	11⅛	Pacific Western Oil	1,000,000	N.P.	50c	12-20-38	.50	1.39	1.58	15⅞	10¼	29¾	11¾
6¾	6¼	..	..	..	Pan American Pet. & Trans.	4,702,945	$5	$1*	12-21-37	....	1.18	.52	9¼	6¼	17⅛	7
43¾	37⅛	41⅞	39¾	41½	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-39	‖2.00	5.42	4.02	44⅜	27¼	64	30⅛
22½	20¼	22½	22	22¼	Plymouth Oil Co.	1,029,800	$5	35cQ	3-31-39	1.40	2.85	1.65	25⅜	15	29⅞	13
11¼	8¾	10¼	9½	10	Pure Oil Co.	3,285,120	N.P.	25c	12-1-37	....	2.15	1.63	13½	8¼	24⅜	8¾
10⅞	8⅝	9¾	9⅜	9⅜	Richfield Oil Corp.	3,896,638	N.P.	50c	12-21-38	.50	.35	....	9⅞	5	6½	4⅛
22⅜	19	21¼	19⅝	21¼	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	3-15-39	1.00	1.97	2.00	27½	15½	54⅛	16
15⅛	11¾	14⅛	13½	14	Shell Union Oil	13,070,625	N.P.	35c	12-20-38	.70	1.44	1.57	18⅜	10	34¾	14⅞
29½	21	26¾	25½	26⅛	Skelly Oil	1,003,949	$15	50c	12-15-38	1.00	6.07	4.42	34¾	18½	60⅝	26½
13¾	12	13½	13	13⅜	Socony-Vacuum	31,151,071	$15	25cSA	3-15-39	.50	1.82	1.38	16⅜	10¾	23¼	13
29¼	26¾	29⅜	27⅞	29⅜	Standard Oil of California	13,014,754	N.P.	30cQ†	3-15-39	1.40	3.17	1.79	34⅞	25⅛	50	27⅛
29⅛	26⅛	28¼	27	28⅛	Standard Oil (Indiana)	15,267,030	$25	25cQ	3-15-39	1.00	3.66	3.09	35½	24¾	50	26½
50⅝	50⅜	50⅝	50⅝	50⅝	Standard Oil of Kansas	112,837	$10	$2	12-8-38	2.00	6.93	1.91	50⅛	32½	43	30⅝
53¼	47¼	50⅝	49¼	50	Standard Oil of New Jersey	26,224,767	$25	50c§	12-15-38	§1.50	5.64	3.73	58⅜	39¾	76	42
66	55	60⅞	59½	59¾	Sun Oil	2,316,484	N.P.	25cQ	3-15-39	1.00	3.86	3.25	65⅛	45	77½	44½
3¼	2⅝	2⅞	2¾	2¾	Superior Oil Corp.	1,388,079	$1	10c	12-28-38	.10	.32	.14	4¼	1¾	7¾	1½
48¼	42⅛	44¾	43¼	44⅛	Texas Corp.	10,875,006	$25	50cQ	4-1-39	2.00	5.02	4.10	49⅝	32⅝	65⅛	34¾
5¾	4⅝	5½	5¼	5⅜	Texas Gulf Producing Co.	888,142	N.P.	15c	12-15-38	.15	.68	.93	5⅞	2⅝	9⅝	2
10⅛	8¼	9½	9	9⅜	Texas Pacific Coal & Oil	888,236	$10	10c	3-1-39	.40	1.11	.72	12½	7	16⅝	5⅜
14⅛	12¼	14¼	13⅜	14	Tide Water Associated	6,369,175	$10	25cQ	3-1-39	1.00	2.08	1.03	15¾	10⅛	21⅝	13⅛
19¾	18¼	19⅜	18⅞	19¼	Union Oil of California	4,666,270	$25	30cQ	2-10-39	1.20	2.58	1.40	22½	17⅛	28¼	17½
23⅜	21	22⅛	22	22⅛	Union Tank Car Co.	1,200,000	N.P.	30cQ	3-1-39	1.30	1.70	1.76	23½	20	31½	22
3⅝	2⅞	3¾	3⅛	3½	Wilcox Oil & Gas	506,522	$5	....	5-10-28	....	.24	—.06	3½	1⅝	6¼	1¾

*Payable in 3½ per cent notes. †Includes extras. ‡One-tenth share $2 preferred stock. §Also 1½ per cent stock dividend. ‖Also right to subscribe to bonds.

New York Curb Exchange

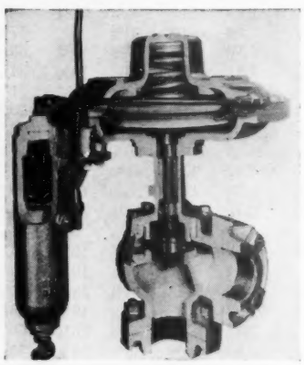
1939 High	1939 Low	Week ending Mar. 11 High	Week ending Mar. 11 Low	Week ending Mar. 11 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1937	Com. sh. earn. 1936	1938 High	1938 Low	1937 High	1937 Low
9	7⅜	8½	8	8	American Republics Corp.	1,308,049	$10	10c	7-11-38	$0.10	$0.27	$0.28	11⅜	5	10	6⅝
7¼	5⅜	6	5½	6	Bridgeport Machine Co.	260,000	N.P.	$1.25	12-30-37	....	1.90	1.26	10¼	4⅞	21⅜	7
30⅜	27¼	31	31	31	Buckeye Pipe Line Co.	200,000	$50	50c	3-15-39	2.00	4.02	4.40	39	22½	51½	36
130	121½	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-27-39	6.50	6.73	7.46	128	97	12	95½
9¼	6⅝	8	7¾	7⅞	Cities Service (new)	3,714,317	$10	....	6-1-32	....	1.02	.13	11	5⅛	5⅜	1½
1⅛	1/32	1	1/32	1	Cosden Petroleum	462,551	$1	....	.....	....	.19	....	2⅜	⅞	5½	1½
23¾	19½	21⅞	20⅞	21	Creole Petroleum	6,975,383	$5	50cSA†	12-15-38	1.00	1.61	1.23	27½	17½	38¾	20¼
7⅛	..	6¾	6½	6¾	Darby Petroleum	351,390	$5	25cSA	1-15-39	.50	1.36	1.26	10¼	5½	18⅝	6½
7⅛	6¼	2	2	2	Derby Oil & Refining	263,162	N.P.	....	.....	....	1.34	.66	3½	1½	8⅜	2¼
20	20	..	..	..	Eureka Pipe Line	50,000	$50	50c	2-1-39	3.00	—.12	—.62	31	16	47½	24½
40	35⅞	39⅜	38¾	39	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-39	1.00	3.51	2.90	46⅞	33	63½	33
69⅜	60⅛	64¼	60⅞	63½	Humble Oil & Refining	8,987,840	N.P.	37½c	4-1-39	3.00	5.22	3.80	72⅝	56	87	54⅞
17	16	17	16¾	17	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	12-1-38	1.25	.98	.95	19½	14⅛	24¼	14½
7	6¼	6⅜	6¼	6⅜	Indiana Pipe Line	300,000	$10	20c	11-15-38	.50	1.03	1.00	9⅜	6	15	5⅞
27½	24¾	27	26¼	26⅞	International Petroleum	14,324,088	N.P.	$1.25†‡	12-1-38	2.50	....	1.81	31¼	21	39½	23½
3½	2¾	2¾	2¾	2¾	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	.10	.17	.20	5	2⅛	8¾	2⅜
20¼	17½	19⅜	18	19¼	Lion Oil Refining	434,820	N.P.	25cQ	12-15-38	1.00	2.17	1.43	25⅛	15⅝	34	12½
9½	8⅝	9½	9¼	9¼	Lone Star Gas	5,553,747	N.P.	20c	4-20-39	.60	1.14	1.02	10⅜	6⅝	14¼	5¼
7¾	6¾	7¼	7	7¼	Louisiana Land & Exp.	2,977,449	N.P.	10cQ	3-15-39	.45	.58	.64	9⅜	6½	15¼	6¾
8¾	8⅛	8¾	8½	8⅝	Midwest Oil Co.	998,444	$10	50c	12-15-38	1.00	1.14	.95	9¾	6⅝	14⅝	6¼
5⅜	4⅞	5½	5⅜	5½	Mountain Producers	1,593,584	$10	30cSA	12-15-38	.60	.76	.62	5¾	4½	7⅞	4⅛
13¼	12	13¼	12⅞	13¼	National Fuel Gas	3,810,183	N.P.	25cQ	1-16-39	1.00	.96	1.19	14⅝	11½	19½	12
8½	7¼	8½	8⅛	8¼	National Transit	509,000	$12.50	40c	12-15-38	.75	1.19	.79	9¼	6½	12½	7¼
1¾	1½	1⅝	1½	1⅝	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	2⅝	1½	5	1⅛
4½	4	..	..	..	New York Transit	100,000	$5	15c	4-15-39	.25	.49	.34	4½	3½	5⅜	3⅞
5½	4½	5½	5¼	5½	Northern Pipe Line	120,000	$10	15c	12-1-38	.35	.78	.66	6	4	12¾	5¾
7⅝	5½	6⅝	6	6⅝	Pantepec Oil	2,441,142	$1	....	.....	....	....	.05	7¾	3½	9⅝	2¾
2¾	1⅞	2¾	2⅛	2⅜	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	—.17	.45	4½	1⅝	12¾	2
3	2⅛	2⅝	2½	2½	Ryan Consolidated	296,931	N.P.	....	.....	....	.46	....	4	2⅛	6½	2¼
3¾	3½	..	..	..	Southern Pipe Line	100,000	$10	15cSA	3-1-39	.30	.85	.41	5⅜	3¼	7¼	3⅞
34¼	32	34⅞	32½	34⅞	South Penn Oil	1,000,000	$25	37½cQ	3-31-39	1.75	4.64	3.59	39	28¾	56	35
19	18½	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	12-28-38	2.00	.95	.97	22¼	16½	42	20
18½	17½	18¾	18⅛	18¾	Standard Oil of Kentucky	2,604,790	$10	50cQ†	3-15-39	1.25	1.60	1.46	18¾	15	21⅛	14¾
6¾	6	6¼	6¼	6¼	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	....	—.58	.42	8¾	5½	13¾	8
21¼	19	20¼	19⅝	20	Standard Oil of Ohio	753,740	$25	25c	3-15-39	1.00	3.67	4.77	22¾	16¼	45	16
2⅝	2	2⅜	2¼	2⅜	Sunray Oil	2,006,176	$1	5c	4-27-39	.05	.42	.26	3¼	2	4⅞	2
4	3	3½	3⅜	3½	Texon Oil & Land	936,024	$2	15cQ	9-30-38	.60	.51	.36	5¼	3½	7⅝	2
5½	4	4⅜	4	4	Transwestern Oil Co.	750,000	$10	....	.....	....	.48	.06	7⅝	4¼	13⅞	4⅝
3⅜	2¾	2⅞	2¾	2¾	United Gas Corp.	7,818,959	$1	....	.....	....	.25	.20	5¼	2⅝	13⅞	3

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

New or Improved Equipment

B.S.&B. Discharge Valve Has Uses Besides Original One

Designed primarily for use on its own automatic flow treaters, the Black, Sivalls & Bryson discharge valve is being used in a variety of



other ways. It is being used in situations where a fluid seal is desired between the fluid discharge of a vessel and the line carrying the fluid away. In handling salt water the valve is used in such a manner as to prevent its coming into contact with air, which would alter its chemical structure.

In cases where air has no serious effect upon the water the valve is used to eliminate the possibility of pulling any air into the disposal system which would break the vacuum created by the descending column of fluid into the disposal wells. When working under conditions where pressure is present, it is advantageous to install a copper tubing equalizing line between the gas space of the tank and the drip-pot on the side of the discharge valve.

W. R. Brown Joins Franks

W. R. Brown, who has been connected with the oil industry 20 years, has joined the Franks Manufacturing Corp., Tulsa, as Oklahoma representative for portable rotary drilling units, winches, and spudders, it is announced by Carl White, Jr., vice president. Having served as purchasing agent for the Ohio Oil Co. and in various capacities with other companies, Mr. Brown is experienced in the production, pipe line and refining divisions.

Bulletins, Booklets, and Other Literature for the Trade

Landis Machine Co., Waynesboro, Pa., has issued the first number of Thread Tips, a direct-mail bulletin which the company says it will publish bimonthly for users and prospective users of its products.

Commemorating three decades as originators and producers of industrial cleaning methods and materials, Oakite Products, Inc., 22 Thames Street, New York, has released a special issue of its house organ, Oakite News Service. The publication gives a review of the development of specialized cleaning methods and materials.

"The Story of Rope," issued for distribution by Tubbs Cordage Co., San Francisco, covers in a 30-page booklet the history and development of cordage making.

Men engaged in analytical work or water conditioning will find valuable information in the fourth edition of the Water Analysis Manual, published by W. H. and L. D. Betz, 235 West Wyoming Avenue, Philadelphia, Pa.

How large quantities of simple or intricate shapes are produced from piled sheets or plates of steel by the oxy-acetylene cutting process is described in an eight-page booklet, "Stack-Cutting Speeds the Production of Identical Parts," obtainable from the Linde Air Products Co., 30 East Forty-second Street, New York.

Stainless steel castings are described and illustrated in a new pamphlet published by the Stainless Steel Division of the Smith Steel Foundry Co., Milwaukee, Wis. The pamphlet shows a series of typical castings, and lists six commonly used Smith alloys.

Ingenious jobs of arc welding described by the men who performed them or saw them done fill 23 helpful pages of the most recent number of the Welder's Stabilizer, published by the Lincoln Electric Company, Cleveland, Ohio. They are grouped under the heading, "How I Did It."

Fluor Acquires Cooling Tower

The Fluor Corp., Ltd., Los Angeles, Calif., has announced its acquisition of the Cooling Tower Co., Inc., of New York. For 20 years the Fluor

P. E. Fluor, executive vice president, and J. S. Fluor, vice president

Corp., Ltd., has been designing and building atmospheric cooling-towers to meet the requirements of the oil, gas and allied industries. Since 1911 the Cooling Tower Co. has been active in forced and inducted-draft cooling-tower development and fabrication.

Speaking of the expansion of the Fluor organization, J. S. Fluor, Jr., vice president, said, "Both companies have long been established in cooling tower engineering, and the combined manufacturing facilities and personnel will offer, we believe, an unsurpassed water-cooling equipment service." No immediate changes are contemplated in the sales or distribution divisions of either company.

Fluor offices are maintained in Kansas City, Houston, Phoenix, Tulsa, New York and London. To these have been added the offices of the Cooling Tower Co., Inc.

Single Wells in Shallow Fields Pumped With National Unit

A unit pumper that makes single-well pumping practical and economical in the shallowest fields has been introduced by the National Sup-

ply Co. This pumper, National Type TU20G-JD2T, is especially suited for installations where the terrain is rough or where it is desirable to vary strokes and duration of pumping as between wells. It also offers a means of eliminating long rodlines, and as it is easily moved and installed, makes an economical temporary lifting unit.

This pumper is of the twin-crank design, recognized as superior for single well pumping. A double reduction gear provides a sufficiently high overall ratio to utilize low-cost high-speed prime movers. At the same time sufficient variation is possible in V-belt drive ratios to adopt medium-speed engines and motors.

The A.P.I. walking-beam rating is 3,000 pounds. Maximum polished-rod stroke is 15 inches, with a maximum counterweight effect at maximum stroke of 1,792 pounds. The peak torque rating of the reduction gear is 5,400 pounds, and the overall gear ratio is 26. A special feature is a compact all-welded construction which achieves rated capacity with less weight. Full information is given in National Descriptive Bulletin No. 212.

Gould Heads Continental in Dallas

Fred T. Gould has been placed in charge of the Continental Motors Sales & Service Co. at 2824 Main Street, Dallas, Tex. This company was established to serve the oil fields and the Southwest territory with the products manufactured by Continental Motors Corp., of which it is a subsidiary. Mr. Gould, who was born and educated in Rochester, N. Y., left engineering school to join the army in 1917. After his discharge at the close of the war he served an apprenticeship with Brown-Lipe Gear Co., of Syracuse, N. Y., and the Selden Truck Corp., of Rochester, to gain practical engineering knowledge. He later was employed by the Columbia Motor Car Co. and the Hudson Motor Car Co. in engineering and sales capacities. He joined Continental Motors Corp. in 1925 and served in the automotive, industrial, aircraft and the special sales division, contacting the government and its agencies.

Cementing Collar of New Type Designed by Baker Oil Tools

To provide for two-stage cementing jobs where the lower stage is above the shoe, Baker Oil Tools, Inc., Huntington Park, Calif., has developed the Baker duplex cement whirler float collar. Since it provides for placement of the cement through tubing or drillpipe, it is also particularly adapted to single cement jobs above the shoe where pressure is needed to break circulation or place cement without putting strain on the pipe. When a second stage of cementing is to be done above the collar, the new Baker whirler bridging collar is placed in the string at the bottom of this upper stage. As shown in the illustration, the new float collar contains a ball-type back-pressure valve which is embedded in a concrete plug that forms a solid baffle in the pipe below the valve. Leading from the valve chamber are ports over the outer ends of which are baffle-plates to direct fluid or cement slurry in a whirling motion as it is forced out of the collar. The valve-cage extends upward to the top of the concrete plug, where it is equipped with left-hand, square threads into which the cementing string is screwed.

The cementing is done through a string of tubing or drillpipe on the bottom of which is a Baker circulation joint and bottom sub, the latter having left-hand, square threads corresponding to those in the duplex collar. This cementing string is run in and screwed into the collar after the liner or casing has been landed in the well. Circulation is broken and the cement pumped down the tubing, being forced out the whirler-ports by the solid baffle below the ports. As soon as the cement is in place the cementing string is unscrewed and removed from the well, being flushed out when disengaged to avoid sticking.

For the second stage of cementing the Baker bridging collar is used. This consists of a whirler collar below which is a seat for a bridging ball. The seat, made of Bakelite, is embedded in a concrete plug through which is an opening large enough to pass the cementing string used to cement the lower stage. After the cementing string has been withdrawn upon completion of the lower stage, the bridging ball is dropped down the pipe and forms a bridge in the casing or liner, forcing the cement when pumped down, to pass out the whirler-ports in the collar. Cement for this stage can be placed by the conventional plug method or by means of a cement retainer.

Both the duplex collar and the whirler bridging collar are generally equipped with metal "petal" baskets to protect the perforations and formations below and above the cement jobs.

Here and There With Men Who Manufacture Equipment

C. B. (Ike) Truitt, for the past six years district engineer for Hanlon-Waters, Inc., Tulsa, has been transferred to Midland, Tex., where he will act as division manager for West Texas and New Mexico.

M. T. Kapelle, 321 South Osage Street, Ponca City, Okla., a former member of the field sales staff of the Guiberson Corp., Dallas, Tex., has returned to this company's sales organization, in charge of sales in the eastern Oklahoma and Kansas fields. The company also maintains an office at 319 Wright Building, Tulsa.

Beckman, Inc., of Muskogee, Okla., patentee of the Beckman process of reverse circulation for drilling in and cleaning out oil wells, has opened offices in Hobbs, N. M. The company's West Texas office is in Odessa.

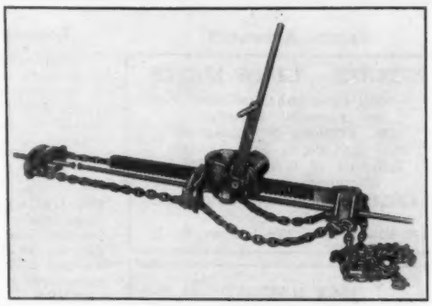
Nurnberg Thermometer Co., Inc., Brooklyn, N. Y., has appointed Roy Busch, 3501 West Eleventh Street, Houston, Tex., as its Gulf Coast representative.

Improved Burst-Proof Steam Hose

The new burst-proof steam hose introduced by the B. F. Goodrich Co., Akron, Ohio, is said to make for prolonged life in this severe service. Tube of the hose is made from a compound possessing great heat-resisting properties and its capacity to resist steam penetrating into the hose carcass and through the cover is said to be remarkable. On sizes 1¼ inches and larger, one ply of strong asbestos woven fabric and a spiral wire reinforcement are placed between the wire braids. On hose sizes 1 inch and under a braided asbestos fabric is used. The Goodrich improved burst-proof steam hose is recommended for saturated steam pressures up to 200 pounds per square inch, or superheated steam up to 390° F. It is available in a range of sizes from three-eighths to 2½ inches.

Pullrod Repairs Are One-Man Job With New Simplex Jack

Templeton, Kenly & Co., Chicago, have introduced the No. 440 Simplex worm-gear pullrod jack for repairing deep-well pullrod breaks. They



are faster as it is necessary only to turn a crank to take up the slack. Making pullrod repairs is a one-man job requiring only a matter of minutes and little effort, the manufacturers say.

The new unit has a fully enclosed dust-proof 7-ton geared mechanism; is lighter, providing greater portability; and is ruggedly constructed. Improved one-piece slips are easily applied.

Broken rods on central powers or back-crank units are pulled in a straight line and without kinking rods, according to the manufacturers. "Turtle-backs" are easily installed and ample space for "heading up" is provided.

GEAR GRINDING ANNOUNCES TWIN-MOTOR TRACTOR

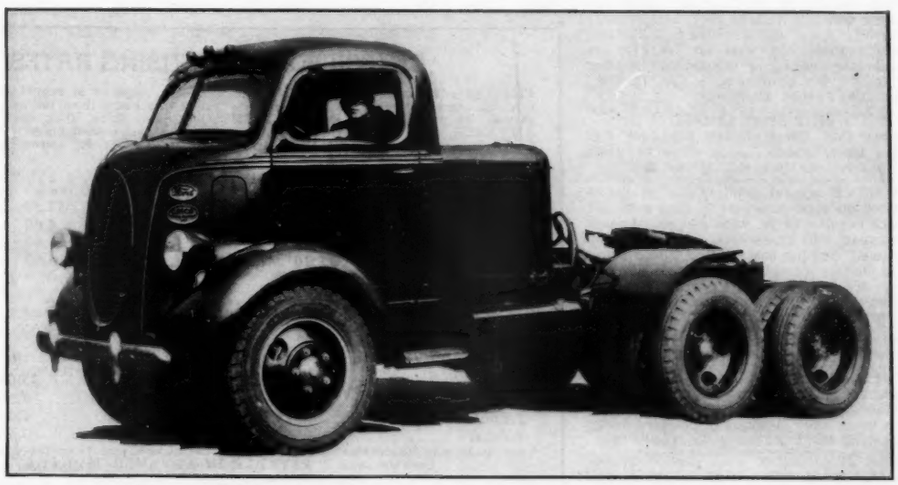
Following two years of research and experimentation the Gear Grinding Machine Co., Detroit, Mich., is introducing the Grico Twin-Motor tractor, embodying what is described as a revolutionary principle in motor-truck transportation and heavy hauling operations.

With this new tractor the concern now offers three separate units designed to meet every trucking requirement. A second device, also newly added, is the trailing axle. The Grico two-axle drive, adaptable to all makes of trucks, will continue to be manufactured. The two new units have been designed for adoption on Ford trucks exclusively, to be marketed for sale through distributors of the manufacturer and Ford dealers.

The Twin-Motor unit consists of the conventional standard Ford cab-over-engine short-wheelbase truck to which has been added an engine placed immediately back of the cab. The second engine drives another set of wheels through its own drive-shaft and rear axle. A streamlined hood, harmonizing with the other sheet-metal work of the unit, houses the second engine. The combined horsepower of the two motors is 190, with a corresponding increase in rim pull and torque. Company officials point out that the unit was engineered to meet the demand of developing great horsepower in a low net weight tractor combined with stamina, speed and economical operation.

In several thousand miles of closely analyzed operations company engineers cite the record of economy resulting from the fact that a heavy load can be pulled with two engines, and the empty trailer can be returned by one engine. By cutting in the second motor when approaching a grade and pulling a load, the Grico Twin is said to double the power of the truck while continuing at the same speed.

Performing alone, each motor is run by its individual controls. When the two engines are working together they provide dual operation in every respect except that there is a single throttle, single gear-shift lever and single brake- and clutch-pedals. Double compression drag of the two motors, which makes for a lighter use of the vehicle's brakes, also provides greater control.



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Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

DRILLING deals wanted 50,000 acres Southern Illinois in and around production area. Elmer Gant, Anna, Illinois.

ILLINOIS 60,000 acres in and near production. Illinois Minerals Company, Cairo, Illinois.

SACRIFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

320 ACRES, Crane Co., Tex., Magnolia lease, cheap in fee. Address 415 Littlefield Building, Austin, Texas.

5 ACRE Mineral Deed, Landowners Royalty under entire 80 acres of land leased to Gulf Oil Co. being N½ NW¼ Sec. 30, Twp. 14s, Rge. 31e, full price only $32.50. Perpetual and full participating. Send your check. Guarantee delivery. P. O. Box 968, Hobbs, New Mexico.

NATURAL GAS: Offers good returns on your investment; shallow drilling. Good market. Low operating expense. Proven territory. H. W. Mitchell, 411 Pacific, Osawatomie, Kansas.

ALLEN CO., KY., SHALLOW FIELD. See or write C. L. Raines, Scottsville, Ky., regarding producing leases and drilling blocks in Allen County oil field.

SHALLOW OIL, Huerfano County, Colo. Depth 500 feet to sand 150 feet thick producing wet gas with 20 bbls. high gravity oil. Will lease 40 acre tracts offsetting present producing well on override for immediate drilling or sell limited number of leases. No proration. S. W. Pressey, Box 614, Pueblo, Colorado.

HOT SPOT LEASES
Forest City Basin, North Missouri. Get them while cheap, some close to wells $1.50 acre, up. Box 152, Milan, Mo.

I HAVE several good blocks of leases located on good structure in Kentucky, all leases regular 10 yr. with 25c rental after first year, will give necessary acreage for test well, drilling cost around Three Thousand dollars complete also have acreage near drilling wells for sale at $1.00 to $10.00 per acre. Box 612, Owensboro, Ky.

NEW 10 yr. lease sec. 11 6n 3w McClain Co. Okla. favorable geology. Joe P. Crawford, fee owner, Oklahoma City, Okla.

OIL LEASES FOR SALE—70,000 acres scattered in 7 oil producing counties of Illinois. Sell cheap in blocks of not less than 1,000 acres. Address C. Leonard Snell, Boatmans Bank Building, St. Louis, Mo.

BAKER Structure well started 27-10s-30e N. Mexico. Offer 40-80 or 160 A. $10 acre. Quick before price advance. R. M. Baker, 206 Mills St., El Paso, Tex.

FOREST City Basin Leases and Royalties. Intensive drilling campaign will advance prices. Inquiries invited. Horton Oil Co., Horton, Kansas.

TO LEASE for oil drilling: 67 acres, Sec. 5, Jefferson County, Ill. Mrs. L. B. Burks, 1125½ N. Main, Decatur, Ill.

Leases and Drilling Blocks

WILL give ¾ interest for $18,000 to drill deep test on 1000 acres, 1½ miles S. W. of good well, ruined by inexperienced drillers and lack of capital at 1,481 ft. 20 ft. saturation. Illinois basin. Get details. Wm. H. Rennscheidt, 1814 E. "B" St., Belleville, Illinois.

NEW MEXICO
State Oil and Gas Leases
STOP FUMBLING. Buy on known structures where major companies own leases. 50c per acre. 5c rentals. Other leases as low as $6.00 per forty. Write for list. Twenty years in the business without a complaint.
HARRY S. WRIGHT, STATE LESSEE
Registered Dealer—State of Iowa
Box 166, Council Bluffs, Iowa
Box 347, Santa Fe, New Mexico.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Mailing Lists

ROYALTY Lists. Unit Owners Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa Oklahoma.

3,500 up-to-date producing royalty owners names and addresses Oklahoma. 800 East Texas. 850 Registered oil and gas dealers. Revised. 1 cent per name. $10 minimum order. OIL INFORMATION SERVICE, P.O. Box 601, Tulsa, Oklahoma.

Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

LATEST lists and bulletins for capital seekers individually sold through magazines for $18.00 now one complete file $3.50; America's 72 leading and 150 secondary underwriters; 185 active Lease and Royalty Brokers; "The Money Market Offered by Insurance Companies with 83 leaders"; "New Type Capital Financing by Banks" and "Major Rackets of Financial Gyps. John Morris, 1040 S. Paxon, Philadelphia, Pa.

Legal Blanks

SINCE 1908 Burkhart's legal forms—serving Mid-Cont. oil fields, including Ill. La. Mo. Ind. & Ky. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So Cinn., Tulsa, Okla.

For Sale—Maps

SPARTA-WILCOX GULF COAST
Geological map showing 158 Geophysical prospects and 85 producing salt domes in Louisiana and 51 Geophysical prospects and 57 Major Company's blocks outlined in Mississippi. Price $100.00.
OIL INFORMATION SERVICE
P. O. Box. 601, Tulsa, Oklahoma

1939 EDITION MAP OF TEXAS
and Eastern New Mexico shows all OIL and GAS FIELDS up to date
$1.00 per copy
WILDCAT MAP published monthly on same area $3.00 per copy $30.00 one year.
ZINGERY OIL MAP COMPANY
Fair Bldg. Fort Worth, Tex.

WEST TEXAS HANDY OIL MAPS
Complete coverage on all West Texas Fields, showing operators, farm names, total depths and exact well locations, $10 per month. Individual maps 50 cents each. Box 2519, Tulsa, Oklahoma.

MAP BOOK of all Texas counties 254 maps, each 14x16 inches. Show: Sections, blocks, surveys, certificate and abstract numbers. With Binder. Postpaid $10.00.
OIL CITY MAP CO.
Box 925, Longview, Texas.

Contractors

FOREST City Basin—Complete cable tool contractors, deep wildcat holes, shallow information holes, clean-out service, turnkey prices. Office close to area, drillers familiar with formations. Good references. J. D. Judd & Son, Martin City, Mo. Phone Dwight 3273.

Wanted

WANTED—To buy casinghead gasoline plant now operating and producing from ten to twenty thousand gallons per day. Prefer Arkansas, Louisiana, or South Texas. Give specifications of equipment, location, and price. Address L. RUDMAN, Box 2018, Tyler, Texas.

Survey Service

OIL FINDING DOWSING METHOD
My deductions a practical method which picks up vibratory reactions emanating from carbo-hydrates. Physico method finds oil, locates faults. Same method discovered great East Texas field also our Watson #2 first producer Wilmington, Calif. field. Employ a man that owns producing wells. I find oil if it exists or no charge. George Miller, 1548 Post, Torrance, California.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

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Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

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OIL ROYALTIES
Registered Dealers Only.
GRIMES ROYALTY CO.
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PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
703 Kennedy Bldg., Tulsa, Okla.

WILL BUY non-producing landowners royalty—under drilling wells only. P. H. HAWLEY, 727 W. 7th St., Los Angeles, Calif.

OWNERS of fractional landowners royalty interests still paying send full details to City Investing Co., 434 Roosevelt Bldg., Los Angeles, Calif.

WANTED producing oil royalties and oil payments in North and West Texas and New Mexico. P. O. Box 1535, Fort Worth, Texas.

PRODUCING ROYALTIES. Big individual investor can arrange with Okla. City man to buy distressed producing royalties under partly dev. leases at big saving. Write Box J-913, The Oil and Gas Journal, Tulsa, Okla.

Business Opportunities

DESIRABLE water front bulk plant, Westchester County, adjacent Long Island Sound, storage tanks, garages, office, warehouse, long lease, reasonable rental. Address Box J-886, The Oil and Gas Journal. Tulsa. Oklahoma.

ATTENTION — OIL AND MINING OPERATORS! Prospectus, Sales Campaigns Prepared. Assistance Organizing and Incorporating Companies. Mailing Lists. Million Oil and Mining Stock Buyers, Investors, Royalty and Lease Buyers. Wire or write Faultless Organization, 3405b Prairie Ave., Chicago, Ill.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Equipment Wanted

WANTED—Steel building: 40' to 48' wide x 90' long. State condition, make, type, price and location in first letter. Address Box J-906, The Oil and Gas Journal. Tulsa, Okla.

A GOOD used air compressor and motor are desired. Capacity of compressor 400 cfm. free air. Send full particulars. Address Box J-907, The Oil and Gas Journal, Tulsa, Okla.

WANT to buy one Star Drill No. 30 with tools and boiler, also steam hammer.
DEIMUND OIL CO.
Cape Girardeau, Mo.

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

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3 Lines	$1.05	$1.80	$2.25	$3.30
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5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
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9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

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This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

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—All or Any Part—

Two 253 h.p. Heine Straight Tube Boilers A.S. &M.E. 200 lbs. pressure. Complete with oil and gas burners. In service less than eight months.

Complete 6,000 bbl. Winkler-Koch pipe still with Winkler-Koch distillation bubble tower 8'6" diameter by 78' high.

One Burrel-Mase fractionator Type E-48-20 Series 600-48, 4' diameter by 51'6" high. 20 trays with bolted manhole on each tray, with separate reboiler and connecting piping.

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SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba, Riverview at Second, Kansas City, Kansas

H. A. Gulley Port Lavaca, Texas

Robt. W. Duden, 2100 S. Union, Tulsa, Oklahoma

FOR SALE at Bartlesville: 1—2A National Drilling Machine. I. T. I. O., Bartlesville, Oklahoma.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

FOR SALE: At Oklahoma City No. 4A National Tank Oil and Gas Separators 500# working pressure. I. T. I. O. Co., Bartlesville, Oklahoma.

FOR SALE
3,000 barrel Cracking Unit located in Oklahoma. This unit is in good condition and could be converted to a combination skimming and cracking unit to handle 6,000 barrels of crude daily by the addition of pumps, towers and exchangers. Box 2009, Tulsa, Oklahoma.

FOR SALE: Sectional Steel Buildings 1—30 x 10 x 60 standing; 1—20 x 8 x 128 K. D. Oklahoma City; 1—24 x 8 x 106 K. D. Seminole, condition O.K. Inspection invited. I. T. I. O. Co., Bartlesville, Okla.

WILSON GIANT PORTABLE DRILLING RIG; Powered by Buda Diesel Engines. Rig is complete and in A-1 condition. Terms. P. O. Box 1360, Seminole, Okla.

TRACTORS
Government crawler type Caterpillars, 5 ton $375, 10 ton $695, Slightly used. Perfect condition.
O. C. EVANS
Mt. Sterling, Ky.

FOR SALE: 2—OCS chain driven reconditioned sand reels, I. T. I. O. Company, Bartlesville, Oklahoma.

FOR SALE: One 6 cylinder Climax Motor, 125 Horsepower, and one Franklin Clutch, both in A-1 condition. Address Garth McMillen, Coldwater, Kansas.

FOR SALE: Used large capacity positive and orifice gas meters. Geo. R. Milner. Okmulgee, Oklahoma.

FOR SALE: At our Oklahoma City Warehouse Model D48 Muskogee Iron Works long line well servicing unit powered by HXE Hercules engines mounted on No. 55 truck. I.T.I.O., Bartlesville Oklahoma.

FOR SALE 45 Star Spudder Complete with tools and equipment, 13 inch down to 6⅝ inch. Also 60 Caterpillar tractor J. L. Gardenhire, Centralia, Illinois.

BUDA MOTOR
90 H.P. Like new, only $275.
R. D. JAMESON, La Cygne, Kansas.

FOR SALE CHEAP: Two Southwestern Distillation Units; Tanks; Steel Buildings; High Pressure and Low Pressure Absorbers. Globe Gasoline Co., Blackwell, Okla.

2—BUDA heavy duty 6 cyl. Power Units, with radiator, fan, etc. Model JH-6, 6x7¼". 80 to 155 HP. Operate on Gas, Gasoline, Butane, or 38/40 Distillate. Completely overhauled. Immediate shipment from stock. Make excellent drilling rigs.
MISSISSIPPI VALLEY EQUIPMENT CO.
Chamber of Commerce Bldg., St. Louis, Mo.

Diesels 25 to 1200 HP For Sale and Wanted

PUMPING Unit—Lee C. Moore #9731, 6000 lb. Polished Rod Capacity. Complete with Engine, 1950 lbs. Counterweights, for 2000' well. Practically new. Also 1550'—5½" O.D., 17 lb., Seamless Csg. in A-1 condition. Complete set 2" tubing tools, conections, complete ¾" Rod Tools, etc. Mutual Investments, Inc., 1106 Hales Building, Oklahoma City, Oklahoma.

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Put The Journal on your payroll—make it a part of your sales force. It will outsell anything you have tried before.

Classified Department

The Oil and Gas Journal

TULSA, OKLAHOMA

For Sale—Equipment

FOR SALE—Steel riveted smoke stack. Self supporting. Diameter 9 feet, height 126 feet. Like new. Can ship on day's notice.

High and low pressure refinery valves. Standard makes. Sizes ¾ inch to and including six inch. Subject to test inspection. Harvey Bros., 706 Rudd, Canon City, Colorado.

FOR SALE: CIW steam operated, McEvoy hand operated blowout preventers, high pressure steel drilling and manifold gate valves, cable tools, oil and gas separators, butane tanks, well servicing units, I. T. I. O. Co., Bartlesville, Okla.

Situations Wanted

REFINERY Operator and Chemist desires location. Experience in still operation, cracking, lube mfg., treating, etc. Management experience. Address Box J-852, The Oil and Gas Journal, Tulsa, Oklahoma.

GRADUATE PETROLEUM ENGINEER—14 years' experience in production and geological work. Several years in supervisory capacities. Supervision of drilling and development a specialty. Desire connection with reliable firm. References if needed. Address Box J-882, The Oil and Gas Journal, Tulsa, Oklahoma.

REFINERY Engineer thoroughly experienced maintenance, construction all types modern refinery units. Executive background. Technically trained. Consider any location, any reasonable offer. Address Box J-905, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

ORGANIC CHEMIST of ability preferably with doctorate, with experience along following lines desirable but not essential: Manufacture of ethylene glycol, formaldehyde, etc. from petroleum or natural gas, catalysis as related to polymerization or cracking by hydrocarbons for research and development work in the Middle West. An opportunity for a capable man. Give details of education, experience, age, nationality, salary. Address Box J-881, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: For a Michigan Refinery, a Laboratory Man thoroughly experienced with Road Oils and Asphalts. In reply state fully experience, training, and salary desired. Address Box J-903, The Oil and Gas Journal, Tulsa, Oklahoma.

HELP WANTED—MALE
Engineer with experience in designing oil field drilling equipment, preferably one who has designed cable tools, small rotaries and winches. Good opportunity for capable man to locate in Ohio with manufacturer of long standing. Address Box J-911, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED
Man qualified superintend erection and operate skimming and cracking plant in Illinois. Give full details, salary desired. Address Box J-912, The Oil and Gas Journal, Tulsa, Okla.

Larger Foreign Attendance At Houston Oil Show

The rapid advancement made in equipment design during the past two years, combined with the added inducement offered by the two world fairs being held in the United States, will bring many oil men from all over the world to see the displays of tools and machinery at the Oil-World Exposition to be held in Houston, Tex., from April 24 to 29, inclusive. The Houston oil show, with its exhibits of particular importance at this time to men in all lands where oil is produced or refined, will naturally get a larger attendance of foreign visitors because of the World Fair in New York and the Pacific International Exposition in San Francisco. Many are planning to attend the Oil Show and one of the other two expositions; some will attend all three.

Ed G. Lenzner, general manager of the Oil-World Exposition, has advised that the exposition management is receiving requests from various countries for hotel reservations. Of the following men who have communicated with Mr. Lenzner, several have instructed that hotel reservations be made for them by the exposition; the others are arranging their accommodations direct or through friends: Otto B. Stiles, vice president and general manager, Mexican Machinery Co. S. A., Tampico, Tamps, Mexico· C. M. Long, managing director, Blood Indian Oils, Ltd., Moose Jaw, Saskatchewan, Canada; M. M. Hess, president, Hughton Cooperative Oil Co., Ltd., Hughton, Saskatchewan, Canada; H. De Wilde, advisory engineer, Royal Dutch-Shell Group, The Hague, Holland; Mihail Pizanty, Moniteur du Petrole Roumain, Bucharest, Rumania; Victor Dumitrescu, production superintendent and assistant technical manager, Steaua Romana, Campina, Rumania; W. J. C. Cooke, Trinidad Central Oilfields, Ltd., San Fernando, Trinidad, British West Indies; A. R. Crawford, drilling superintendent, Trinidad Leaseholds, Ltd., Forest Reserve, Trinidad, British West Indies; Fritz G. Dressler, technical adviser, Kopalnia nafty Krakow-Sosnkowski, Boryslaw 3, Poland; Jakob Schmer, president, Jakob Schmer Co., Kryz ad Gorlice, Poland; E. E. Leonhardt, mining engineer, Astra Romana Roumania, Campina, Rumania; H. Hugel, mining engineer, Astra Romana Roumania, Campina, Rumania; C. Iordachescu, engineer, Soc. "Concordia," Rumania; F. W. Starke, Caribbean Petroleum Co., Venezuela, South America; Andrei Popovici, production superintendent, Creditul Minier, Bucuresti, Rumania.

Letters have also been received from Bahrein Island advising that a number of important engineers and superintendents are planning to attend the Houston Oil Show. Considerable drilling, production, and refining activity is taking place in this territory and a great deal of American equipment for all branches of the industry will be purchased for activity expected.

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